

PROGRESS REPORT 2023

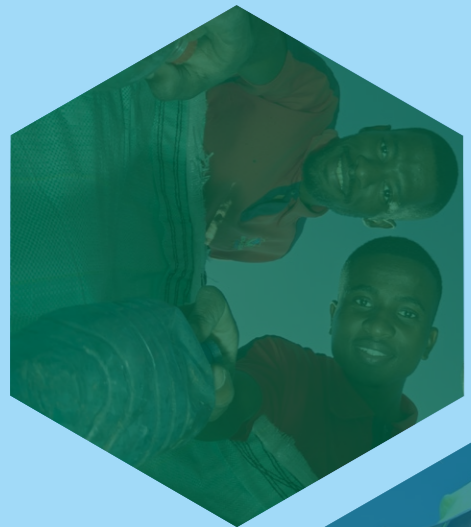
ADVANCING CIRCULARITY
SOLUTIONS FOR CHANGE

Contents

Tackling plastic pollution requires a systems change in the way we deal with waste around the world. The challenge is huge and solutions differ from country to country, but the Alliance to End Plastic Waste believes that with deep and wide collaboration, we can make a significant difference.

Our mission is to help foster that change by testing and evolving solutions for circularity. Through our projects around the world, we evaluate and demonstrate approaches that work. By combining that experience and expertise, we catalyse broader action through documented Solution Models — recipes for success that others can follow and adapt.

The Alliance convenes partners from the public and private sectors, as well as wider civil society. We invite others to build on the Solution Models we have developed by adapting, replicating and improving them, to contribute to the development of a circular economy for plastic.



Chair's Message



JIM FITTERLING
Chair of the Board, Alliance to End Plastic Waste
Chair and Chief Executive Officer, Dow

In 2023, the Alliance and its partners have collectively made important strides in its journey to help advance a circular economy for plastics. The work in solving the plastic pollution problem presents many challenges – particularly in developing countries – but the group's focus on taking what succeeds, replicating and scaling it, is beginning to deliver real impact.

The Alliance was established by engaged, global business leaders with a clear mission to end plastic waste entering the environment and to create circular systems that keep materials and products in use for as long as possible. Five years on, it convenes more than 70 companies across the plastic value chain and engages extensively with local communities, civil society groups, intergovernmental organisations, and national and local governments around the world.

Getting to this point has been a story of innovation and perseverance with on-the-ground successes — but also has underlined the scope of the plastic waste problem, and how difficult systems change is to effect. The Alliance cannot tackle the global plastic waste challenge alone and its unique approach embodies that reality. Technology, ecosystem, and business model guidance — combined with project implementation experience and meaningful funding — encourages additional large-scale external investment.

As the Board Chair since January 2022, I am delighted to see the progress that has been made and the ongoing evolution of the organisation to live up to its vision

and mission. My fellow directors and I will continue to guide and steward the Alliance's contributions to address the complex challenges presented by plastic waste, ensuring its investments and actions catalyse the systems change that is so needed.

Over the course of 2023, the Alliance actively engaged over 900 organisations through its work. The Alliance has established itself as an incubator and laboratory for innovative solutions to address plastic waste. A case in point is the [current collaboration with Saahas Waste Management Private Limited](#) to support some of India's vulnerable sanitation workers. Under the Let's Transform initiative, Saahas builds ethical supply chains and seeks to improve the lives of informal waste pickers while diverting low-value plastics from the environment. Altogether, the cumulative impact of all ongoing projects in the Alliance's global portfolio since inception has resulted in over 118,000 tonnes of plastic waste diverted from the environment or unmanaged landfills, and over 128,000 tonnes recycled.

Over the last year, the Alliance has continued to hone its efforts and evolve the way it measures impact. The Alliance's unique ability to bring together expertise,

experience and capital allows it to test and de-risk solutions to the plastic pollution problem while creating social benefit and mitigating climate change. The aim is to empower others so that the value of the Alliance's work extends well beyond its own projects. One example is the [Plastic Waste Management Framework](#), which identifies six categories of waste management and recycling maturities globally and outlines specific policies and actions that can help countries increase plastic waste collection and recycling rates.

As the Alliance advances toward 2030, it will continue to play that role of convener, sharing lessons with a wide network of partners to catalyse existing and new impact.

The global focus on the problem of plastic pollution has intensified since the Alliance was founded. The precise shape of an International Legally Binding Instrument on Plastic Pollution will be decided in the coming months. It is clear from the formal Intergovernmental Negotiating Committee discussions to date that a linear system of production and consumption of plastics is no longer

tenable, and the world needs to take significant steps toward circularity. That will mean integrating solutions that not only address the challenge of plastic waste, but also create a circular economy for plastics. Together, with its members and partners, the Alliance looks forward to rolling up its sleeves, sharing its expertise, and implementing the final agreement.

This report reflects the Alliance's progress in 2023 to demonstrate and de-risk the financial and technical feasibility of solutions, as well as their environmental and social impact.

All of this would not have been possible without the tireless work of the excellent team and in-country partners at the Alliance and the invaluable support that stakeholders — from member companies, to partners, financial institutions, and municipal and national governments — have been able to provide. I look forward to even greater collaboration in the years ahead as the Alliance continues to do what is needed to capture the value of plastic as a sustainable material through the achievement of a circular economic model.



a. Training informal waste management micro-entrepreneurs. – Let's Transform, India
b. Sorting centres in small to medium-sized cities in Brazil. – Cidades+, Brazil

President & CEO's Message



JACOB DUER
President & CEO, Alliance to End Plastic Waste

Since inception, projects supported by the Alliance increased their direct footprint, making an appreciable difference to the lives of people they serve. We diverted nearly 120,000 tonnes of plastic waste away from the environment and extracted value from nearly 130,000 tonnes, largely through recycling. Within the same span of time, our behaviour change and public education programmes have reached over 270,000 people. In 2023, our projects have also created over 480 new jobs and almost 8,000 informal waste workers have benefitted from either improved income, working conditions, or social benefits.

Impressive though these numbers are, the magnitude of the global plastic waste challenge is such that they are only ever part of the story. The Alliance is in a unique position to create lasting impact that goes beyond the direct output of our own projects and our funding. We have the knowledge and expertise to develop and test new business models and technologies to unlock solutions that would otherwise be impossible.

Welcome to the Alliance's 2023 Progress Report. With continued global focus on solutions to the plastic waste challenge, the Alliance's work to advance circularity has accelerated, with strong progress achieved on developing, de-risking, and communication of solutions that can be scaled.

Key to this effort are the Solution Models that we began documenting in 2023. The first two of many Solution Model playbooks to come were published in March 2024. These act as proven blueprints that address plastic waste leakage and encourage the transition to a circular economy that can be used and adapted by others. To date, 10 projects have been assured against the Solution Models demonstration criteria, highlighting our commitment towards robust verification of our assessment approach and reporting. Sharing the knowledge and expertise gathered through our projects since our inception in 2019 is vital to scaling our success and making a significant impact on the global plastic waste problem.

Another way in which we extended our impact in 2023 was through catalysing funding from external sources. Since inception, US\$368.8 million in co-funding has been committed to projects that advance our mission to end plastic waste leakage and accelerate the transition towards a circular economy for plastic.

Integral to the success of our mission is reaching out to and partnering with others who share our goals. In 2023,

we engaged with 904 different organisations, including non-profits and businesses in the waste management value chain, as well as policymakers at local, regional, and national level.

In recent months, global attention has rightly been focused on the UN-brokered negotiations to craft an International Legally Binding Instrument on plastic pollution. We are fully committed to the UN process, and we look forward to playing our part in implementing the eventual agreement. As an accredited business and industry representative to the United Nations Environment Programme (UNEP) we participate as an observer in relevant intergovernmental meetings. We support governments, upon request, in articulating the on-the-ground realities of different policy options. The negotiations and decision-making are the exclusive prerogatives of UN Member States.

Come 2024, we will continue our work with partners to identify and plug key gaps and blockages in the plastics value chain that are hindering progress to circularity. At the same time, we will maintain a broader scope: focusing attention on the informal waste workers

who are so vital to waste management in many lower income countries. Improving the lives and the status of these often-marginalised workers is a crucial aspect of our work and one that will be front of mind in this crucial year for plastics circularity.

In closing, 2023 was a year of significant progress supported by the continued evolution of the Alliance's approach to ending plastic waste. That evolution will continue in 2024, as we look to innovate and execute at scale, supported by an increasing global consensus on the need for a circular economy for plastics.



- a. [Helping vulnerable communities earn new income by unlocking the value of plastic waste. – Closing the Loop, Ghana](#)
- b. [Creating Value from Plastic Waste along the Yangtze River. – JingSu, China](#)
- c. [Site visit with stakeholders in Malang. – Bersih Indonesia: Eliminasi Sampah Plastik, Indonesia](#)

Impact Metrics at a Glance

2023 saw another year of increasing impact as our projects around the world continued to develop and mature. Understanding and accurately measuring the effects of our work is integral to providing an accurate view of our progress. In doing so, it can inform dialogue and enable trusted engagement among stakeholders to accelerate our mission. That is why we are on a journey to strengthen our reporting and convey our full impact through independently assured metrics.

SOLUTION ACCELERATOR FUND¹ Cumulative Impact since 2019

10
PROJECTS

demonstrating Solution Models.



270,551
PARTICIPANTS

engaged through education programmes.

118,580
TONNES

of unmanaged plastic waste reduced.

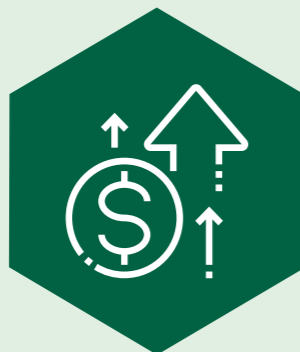


128,240
TONNES

of value captured from plastic waste, primarily through recycling.

US\$375
MILLION

of total revenue collected.



US\$271
MILLION

has been allocated to mission-related activities.

SOLUTION ACCELERATOR FUND² Impact in 2023

904
ORGANISATIONS

the Alliance has actively engaged to enable system change, finance and/or develop and implement our projects and broader initiatives.

7,926
INFORMAL
WASTE WORKERS

with improved income, working conditions and/or social benefits.

482
NEW JOBS

net increase in formal jobs.



CATALYSED CAPITAL³ Cumulative Impact since 2019

US\$368
MILLION

of funding commitments by other parties and impact investors⁴.

US\$289
MILLION

of catalysed funding commitments that have been allocated to mission-related activities.

^{1,2,3} Assured by DNV

⁴ The Alliance acknowledges a significant restatement of funds committed through our accelerator programme with Plug and Play following closure of reporting, resulting in a 46.6% uplift across reporting periods 2020-2022 and has been checked by our assurer.

Assurance

Independent Limited Assurance Report to the Directors of Alliance to End Plastic Waste

Alliance to End Plastic Waste (“AEPW” or “the Alliance”) commissioned DNV Business Assurance Services UK Limited (“DNV”, “us” or “we”) to conduct a limited assurance engagement over Selected Information presented in the Progress Report 2023 (the “Report”) for the reporting year ended 31st December 2023.

Our Conclusion

On the basis of the work undertaken, nothing came to our attention to suggest that the Selected Information is not fairly stated and has not been prepared, in all material respects, in accordance with the Criteria.

This conclusion relates only to the Selected Information, and is to be read in the context of this Independent Limited Assurance Report, in particular the inherent limitations explained overleaf.

Our observations and areas for improvement will be raised in a separate report to AEPW’s Management. Selected observations are provided below. These observations do not affect our conclusion set out above.

Selected Information

The scope and boundary of our work is restricted to the key metrics included within the Report for reporting periods indicated below (the “Selected Information”). In addition to the corporate-level data assured below, we also provided limited assurance over selected project-level data which is signposted throughout the Report.

Key Metrics	Metric Description	Reporting period	Reported value	Unit
Reduced unmanaged waste	Cumulative reduction in unmanaged plastic waste	Cumulative since inception (FY19)	118,580	tonnes
	Reduction in unmanaged plastic waste in 2023	1 st January 2023 – 31 st December 2023	79,801	tonnes
	Potential forecasted capacity installed to collect and properly manage municipal solid waste****	Cumulative since inception (FY19)	61,200	tonnes
	Potential forecasted capacity installed to collect and properly manage municipal solid waste****	1 st January 2023 – 31 st December 2023	61,200	tonnes
Capture Value from Waste	Plastic waste valorised	Cumulative since inception (FY19)	128,240	tonnes
	Plastic waste valorised	1 st January 2023 – 31 st December 2023	89,132	tonnes
Enable ecosystem	Number of organisations engaged**	1 st January 2023 – 31 st December 2023	904	number
	Number of participants reached through education programmes	Cumulative since inception (FY19)	270,551	number
	Number of participants reached through education programmes	1 st January 2023 – 31 st December 2023	81,374	number
Mobilise Capital	Total Funding Commitments*	Cumulative since inception (FY19)	757.36	Million USD
	Total Funding Commitments*	1 st January 2023 – 31 st December 2023	240.08	Million USD
	Total Funding Allocated***	Cumulative since inception (FY19)	560.43	Million USD
	Total Funding Allocated***	1 st January 2023 – 31 st December 2023	114.66	Million USD
	Total Member Revenue Collected	Cumulative since inception (FY19)	375	Million USD
	Total Member Revenue Collected	1 st January 2023 – 31 st December 2023	78	Million USD
Create Social Benefit	Number of new jobs created or informal sector workers operating under responsible working conditions	1 st January 2023 – 31 st December 2023	8,408	number
Develop Solution Models	Number of projects demonstrating Solution Models	Cumulative since inception (FY19)	10	number

* We note that our limited assurance opinion of the forward-looking information marked with (*) only covers the evaluation of its preparation according to the Criteria, rather than its actual outcome. It is intended to assure stakeholders that the information has been prepared in compliance with the relevant reporting standards, however it does not guarantee its accuracy and realization in the future.

** Number of stakeholders (entity / organisation level) that the Alliance or Alliance related initiatives has actively engaged and who have realised or could contribute to improvement in plastic waste management and/or circularity

*** Across all projects.

**** Project ParikraM was sole contributor to this metric.

Assurance

We conducted an assurance readiness assessment for the below Impact Metrics that at the time of assurance were not assurance ready, and therefore not disclosed by the Alliance. We understand the Alliance continues to develop these further and roll out its impact reporting approach through working with its partners on the ground in the next reporting period.

Key Metrics	Metric Description	Reporting period
Reduced unmanaged waste	Potential forecasted capacity to recover/use plastic waste	Cumulative since inception (FY19)
	Potential forecasted capacity to recover/use plastic waste	1 st January 2023 – 31 st December 2023
Create Social Benefit	Number of people with new or improved access to waste management	Cumulative since inception (FY19)
	Number of people with new or improved access to waste management	1 st January 2023 – 31 st December 2023
	Number of new jobs created or informal sector workers operating under responsible working conditions	Cumulative since inception (FY19)

An assurance readiness assessment was also conducted on the following metric:

- Total Funding Disbursed;

It was decided that this metric would remain as an L2 (level 2) data point and removed from this assurance scope.

To assess the Selected Information, which includes an assessment of the risk of material misstatement in the Report, we have used AEPW’s Basis of Reporting (the “Criteria”), which can be found [here](#). We have not performed any work, and do not express any conclusion, on any other information that may be published in the Report or on AEPW’s website for the current reporting period or for previous periods.

Basis of our conclusion

We are required to plan and perform our work in order to consider the risk of material misstatement of the Selected Information; our work included, but was not restricted to:

- Conducting interviews with AEPW’s Directors and Management to obtain an understanding of key processes, systems and controls in place to generate, aggregate and report the Selected Information.
- Onsite field visits to below selected Alliance projects. We were free to select these projects on the basis of materiality and impact.
 - Let’s Transform (India),
 - Plastic Cycle (Vietnam),
 - Inkwazi Isu Project (South Africa),
 - MGA Plastic Collection & Recycling Program (Kenya).
- We note Fuel from Low Value Plastic in Philippines was selected by DNV for a site visit. However, this could not be carried out because of a fire accident at the site. It was replaced by Plastic Cycle in Vietnam.
- DNV conducted additional site visits based on AEPW’s request for those projects featured in the Progress Report, which included:
 - Scaling RESIN8 Solution for Hard to Recycle Plastics (South Africa),
 - Paving Green Roads (Singapore),
 - Circular Action BV (Brazil),
 - Jingsu – Creating Value from Plastic Waste along the Yangtze (China).
- Remote meeting with Corporate Office to review processes and systems for preparing and consolidating the data.
- Performing limited substantive testing on a selective basis of the Selected Information to check that data had been appropriately measured, recorded, collated and reported;
- Reviewing that the evidence, measurements and their scope provided to us by AEPW for the Selected Information is prepared in line with the Criteria;
- Assessing the appropriateness of the Criteria for the Selected Information; and
- Reading the Report and narrative accompanying the Selected Information within it with regard to the Criteria.

Responsibilities of the Directors of AEPW and DNV

The Directors of AEPW have sole responsibility for:

- Preparing and presenting the Selected information in accordance with the Criteria;
- Designing, implementing and maintaining effective internal controls over the information and data, resulting in the preparation of the Selected Information that is free from material misstatements;
- Measuring and reporting the Selected Information based on their established Criteria; and
- Contents and statements contained within the Report and the Criteria.

Our responsibility is to plan and perform our work to obtain limited assurance about whether the Selected Information has been prepared in accordance with the Criteria and to report to AEPW in the form of an independent limited assurance conclusion, based on the work performed and the evidence obtained. We have not been responsible for the preparation of the Report.

Assurance

Standard and level of assurance

We performed a **limited** assurance engagement of specified data and information using the international assurance best practice including the International Standard on Assurance Engagements (ISAE) 3000 – ‘Assurance Engagements other than Audits and Reviews of Historical Financial Information’ (revised) issued by the International Auditing and Assurance Standards Board. To ensure consistency in our assurance process, we conducted our work in accordance with DNV’s assurance methodology, Verisustain™, applying only the pertinent sections of the protocol relevant to the specific purpose of the activity. This methodology ensures compliance with ethical requirements and mandates planning and execution of the assurance engagement to obtain the desired level of assurance.

DNV applies its own management standards and compliance policies for quality control, which are based on the principles enclosed within ISO IEC 17029:2019 - Conformity Assessment - General principles and requirements for validation and verification bodies, and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards, and applicable legal and regulatory requirements.

The procedures performed in a limited assurance engagement vary in nature and are shorter in extent than for a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained if a reasonable assurance engagement had been performed.

Disclaimers

The assurance provided by DNV is limited to the selected indicators and information specified in the scope of the engagement. DNV has not conducted an assessment of the reporting organisation’s overall adherence to reporting principles or the preparation of the report. Therefore, no conclusions should be drawn regarding the reporting organization’s compliance with reporting principles or the quality of the overall report. The assurance provided by DNV is based on the selected indicators and information made available to us at the time of the engagement. DNV assumes no responsibility for any changes or updates made to the indicators or information after the completion of the assurance engagement.

Use and distribution of our Independent Limited Assurance Report

This report is intended solely for the information and use of the Directors of AEPW and is not intended to be and should not be used by anyone other than these specified parties. DNV expressly disclaims any liability or co-responsibility for any decision a person or an entity may make based on this Independent Limited Assurance Report.

Our competence, independence and quality control

DNV established policies and procedures are designed to ensure that DNV, its personnel and, where applicable, others are subject to independence requirements (including personnel of other entities of DNV) and maintain independence where required by relevant ethical requirements. This engagement work was carried out by an independent team of sustainability assurance professionals. DNV did not provide any services to AEPW in the reporting period that could compromise the independence or impartiality of our work. Our multi-disciplinary team consisted of professionals with a combination of environmental and sustainability assurance experience.

Inherent limitations

DNV’s assurance engagements are based on the assumption that the data and information provided by AEPW to us as part of our review have been provided in good faith, is true, complete, sufficient, and authentic, and is free from material misstatements. Because of the selected nature (sampling) and other inherent limitations of both procedures and systems of internal control, there remains the unavoidable risk that errors or irregularities, possibly significant, may not have been detected. The engagement excludes the sustainability management, performance, and reporting practices of the Company’s suppliers, contractors, and any third parties mentioned in the Report.

DNV Supply Chain and Product Assurance

DNV Business Assurance Services UK Limited is part of DNV – Supply Chain and Product Assurance, a global provider of certification, verification, assessment and training services, enabling customers and stakeholders to make critical decisions with confidence.

For and on behalf of
DNV Business Assurance Services UK Limited
London, UK
30 July 2024



Impact Metrics at a Glance



Our Impact Metrics Framework defines the material topics aligned to our mission: Develop Solution Models; Enable the Ecosystem; Mobilise Capital; Reduce Unmanaged Waste; Capture Value from Waste; Create Social Benefit; Mitigate Climate Change. This framework outlines the guiding principles that we report against, setting the metrics and data that underpin these topics. (see Alliance [Basis of Reporting 2023](#)).

Since 2022, our assurance provider has supported our journey by providing guidance and assessing metrics for ‘assurance-readiness’ in line with global assurance

standard ISAE 3000. This year, we voluntarily sought external Limited Assurance for our impact metrics and independent assurance of eight Solution Accelerator Fund projects featured in this report. For the first time, we present our impact through a set of independently assured impact metrics since inception (2019).

The Way Forward

2024 will be a crucial year for advancing solutions to tackle global plastic pollution. The International Legally Binding Instrument (ILBI), due to be agreed by the end of the year, will set the framework for how

countries tackle this issue. As the ink dries on that agreement, the Alliance’s work based on accurate, assured impacts from our projects — will play an important role in dealing with plastic waste, helping to scale proven approaches.

To prepare for that broader impact beyond the Alliance’s own projects, we are committed to keeping pace with global standards of sustainability reporting as these evolve. Our aim is to fast-track this effort so that all metrics will be assured in future. We look forward to presenting those metrics in future Progress Reports.

Climate Impact

Mitigating climate impact is a relevant additional benefit of the Alliance’s work in accelerating the transition to plastics circularity.

Diverting plastic waste back into the value chain as the feedstock for new products displaces the use of hydrocarbon-derived feedstock for the production of virgin plastics, reduces dependence on waste-to-energy for disposal, and reduces the risk of open-burning of plastic waste at a dump site, all of which reduce greenhouse gas emissions.

Accurately measuring the life-cycle benefit of plastic waste management projects is challenging. The nature of Alliance partner projects, the wide-range of geographic locations, and specific situations they take place will require a significant effort to determine such impact in a way that is standardised and can be assured. Robust life-cycle assessment methodologies are still being developed and tested by the industry, with the underlying assumptions being critical to the integrity of the modelling. For example, what is the carbon footprint of a project’s energy supply? Where has the plastic waste come from and how was it transported? Where will it go if it’s not recycled?

The Alliance is approaching this problem looking at how to develop reasonable approximations that can be applied at a macro-level, as well as project specific, in order to help the value-chain understand the opportunity to reduce carbon emissions through circularity and for brands to be able to anticipate future scope 3 emissions. We therefore intend to present an assured climate impact metric in future editions of our Progress Report.

- a. After collection and processing the material is sold to manufacturers of construction materials and household items. – Closing the Loop, Ghana
- b. Recicleros aims to create a replicable model for community-based waste collection programmes. – Cidades +, Brazil
- c. Educational programme to foster youth-led action against plastic waste. – Changemakers, India
- d. Cleanup of a dump site. – Malang, Indonesia

Advancing Circularity: Solutions for Change

Through our projects and programmes, we support the development of the infrastructure, innovation, and ecosystems required to boost the capability of municipalities and countries to collect, sort, and recycle plastic waste at scale. Our vision is ending plastic waste and pollution, and our purpose is leading the creation of a circular economy for plastic. Since inception, we have supported more than 80 projects around the world aligned to this objective.



As our work has progressed, we have evolved into a global laboratory that brings together existing knowledge and expertise alongside new thinking to develop solutions to the problems presented by the leakage of waste into the environment. We partner widely to identify, amplify, and test technologies as well as business and solution models.

As we document in this Progress Report, the solutions and models we are developing are often ground-breaking and require close collaboration amongst infrastructure providers, innovators, scientists, the private sector, government, communities, development finance institutions, and the financial sector.

Since our beginnings in 2019, our focus had been to learn fast and apply that experience through a commitment to continuous improvement. Along the way, some of our projects have needed adjustments to ensure they remain on track to deliver an impact over the longer term. This is part of a typical incubator model, where new ideas and approaches are tested for the first time, often requiring some calibration. This year, in partnership with the Boston Consulting Group, we began synthesising our knowledge and emerging best practices into Solution Model playbooks. These playbooks bring together all the experience we have gathered from our projects to provide a recipe that others can replicate, scale, and further improve upon.

Beyond Solution Models

This effort to share the knowledge and experience that has come from our projects, acknowledges that we have a transformational role to play. By leveraging our collective intelligence and capabilities from across the plastics value chain, our work can evolve from incremental projects and proven Solution Models to encouraging broader systems change to end plastic pollution.

The context for our work is changing too. The UN-brokered negotiations on the ILBI on plastic pollution have increased global attention and the urgency to act on the issue of plastic waste, spurring global action. We are seeing governments developing and implementing policies and action plans on plastic pollution, companies making significant commitments and investments, and community groups, non-governmental organisations, and coalitions forming at an increasingly rapid pace, all linked by a common desire to address plastic waste and pollution.



This momentum creates opportunities for the Alliance to advance our purpose of leading the creation of a circular economy for plastics that enable the impact, scale, and reach needed to tackle plastic waste effectively. Seizing these opportunities will necessarily mean evolving our approach over time, as the opportunities to catalyse and scale impact arise. This may involve lifting our sights from the development and implementation of a collection of individual projects, to embrace initiatives that aim to achieve systems change, tackle issues at a deeper, more focused geographic level, and which continue to engage players across the plastic value chain.

Once the text of the ILBI is ratified, involved governments will set upon the ambitious task of formulating national action plans to address the unique challenges their countries face at a national, regional, and municipal level. We must be ready to roll-up our sleeves

and apply our expertise to help realise its ambition in practice by sharing knowledge and expertise gleaned from the on-ground projects, research, and technological innovations we have supported over the past five years, to achieve meaningful improvements in the plastic pollution problem.

- a. **Uniting the government, industry, and civil society around diverting plastic waste from the environment.** – Inkwazi Isu, South Africa
- b. **Digital watermarks can carry information about product and packaging material, enabling a high accuracy in sorting and traceability.** – HolyGrail 2.0, Belgium

Developing & Testing Solution Models

At the end of 2023, the Alliance funded 52 active projects globally.



Developing & Testing Solution Models

Through its innovative projects around the world, the Alliance develops practical and impactful solutions to the plastic waste problem that can be deployed at scale. We want these to be replicated, scaled, and implemented in different contexts, tailored to the specific needs of local communities. To advance our objective, we partnered with the Boston Consulting Group (BCG) to develop a series of Solution Model playbooks. These capture knowledge and expertise gained from the implementation of projects around the world and act as blueprints for systems change. The Alliance encourages all stakeholders who can positively influence this advancement to review our Solution Model playbooks as they are published, and to get in contact with us or BCG for additional information.



Researching the use of plastic waste in asphalt roads. – Paving Green Roads, Singapore

The plastic waste challenge is complex but is best addressed through a shift from the current take-make-dispose practice to a circular model in which priority is given to reduce, reuse and recycle. Making that transition will require coordinated action by national and regional governments, companies, civil society, and communities across the world.

Solution Models are central to the Alliance's mission. The aim is to develop, de-risk, and demonstrate solutions that address sources of plastic waste in different situations and contexts. Once a Solution Model is validated based on on-the-ground project experience and documented, it opens up the possibility of replication. Further to this internal validation, we seek external independent assurance of our Solution Models. Since inception, 10 projects have been assured against the Solution Models demonstration criteria.

To be characterised as a Solution Model, an approach must exhibit a number of key characteristics:

- It must demonstrate significant impact in terms of outcome, such as diverting plastic waste from the environment, bringing improved waste management services to communities, or reducing virgin plastic volume through recycling.
- It must be economically viable and ideally investable.
- It must be environmentally and socially positive.
- It must be replicable within a three-to-five-year timeframe.
- It must either be novel or demonstrate an existing solution in a new context or geography, thereby creating a showcase to encourage further replication.

In practice, a Solution Model is made up of building blocks that link together efficiently to deliver impact. It is no use, for example, having a brilliant waste collection network if there is no sorting and recycling capacity to utilise the collected waste.

Once projects that fit these criteria are selected, the Alliance — in partnership with BCG — aims to document the practical lessons arising from each of them in a playbook. These also combine with the experience of secondary projects which have a bearing on one or more aspects of the overall Solution Model. In the case where there is already significant industry experience, this is also brought into a playbook.

As well as the technical aspects of a solution, these playbooks also address how the value chain fits together and what enablers are necessary for the model to work. These might be financial support mechanisms, the availability of specific technology, standards or design guidelines for packaging, or government legislation.

The aim is for the playbooks to act as proven blueprints that can be used and adapted by others to address plastic waste leakage and transition to a circular economy. We aim to inform, inspire, and collaborate with a network of partners to further develop and scale our Solution Models.

This is about magnifying existing solutions, scaling their impact, and sharing knowledge from on-the-ground experience to help other players in the waste management and recycling value chain identify critical success factors specific to their local circumstances. That will ultimately reduce unmanaged waste, capture value from waste, and mitigate climate impact.

Two Solution Model playbooks in the series have been published to date:

[Engaging Households in Segregated Municipal Waste Collection](#) addresses the approach to identifying and

separating various types of solid waste within households. This is a priority activity since household waste segregation improves the volume and quality of material collected for recycling, while reducing sorting costs and decreasing use of landfill for disposal. The playbook maps the steps Alliance project partners have taken to encourage households to separate the waste at source in projects implemented in Argentina, China, India, and Indonesia.

A second playbook, [Unlocking Value Through Basic Manual Sorting of Municipal Waste](#) highlights the improved value recovery of plastic waste for recycling, including the use of simple and low-cost equipment to improve the ergonomics and speed of basic manual sorting. This playbook is especially relevant to countries with a basic regulatory framework but limited collection and treatment infrastructure, or those with early-stage recycling systems driven by market opportunities but that lack additional financial support mechanisms for more complex recycling. Alliance projects in Brazil, China, Indonesia, and Kenya underpin this playbook.

The scale of systems change required to reach plastic circularity is vast. Making the transition will require collaboration between stakeholders along the full plastic value chain as well as local and national governments. Solutions must be environmentally beneficial, socially responsible, and economically viable — and to make significant strides towards plastic circularity, they must be replicable and scalable. The Solution Model playbooks are intended as a guide to what works on the ground. We encourage project developers and partners around the world to use them as a foundation to build on to accelerate the systems change we need to end plastic waste.

Developing & Testing Solution Models

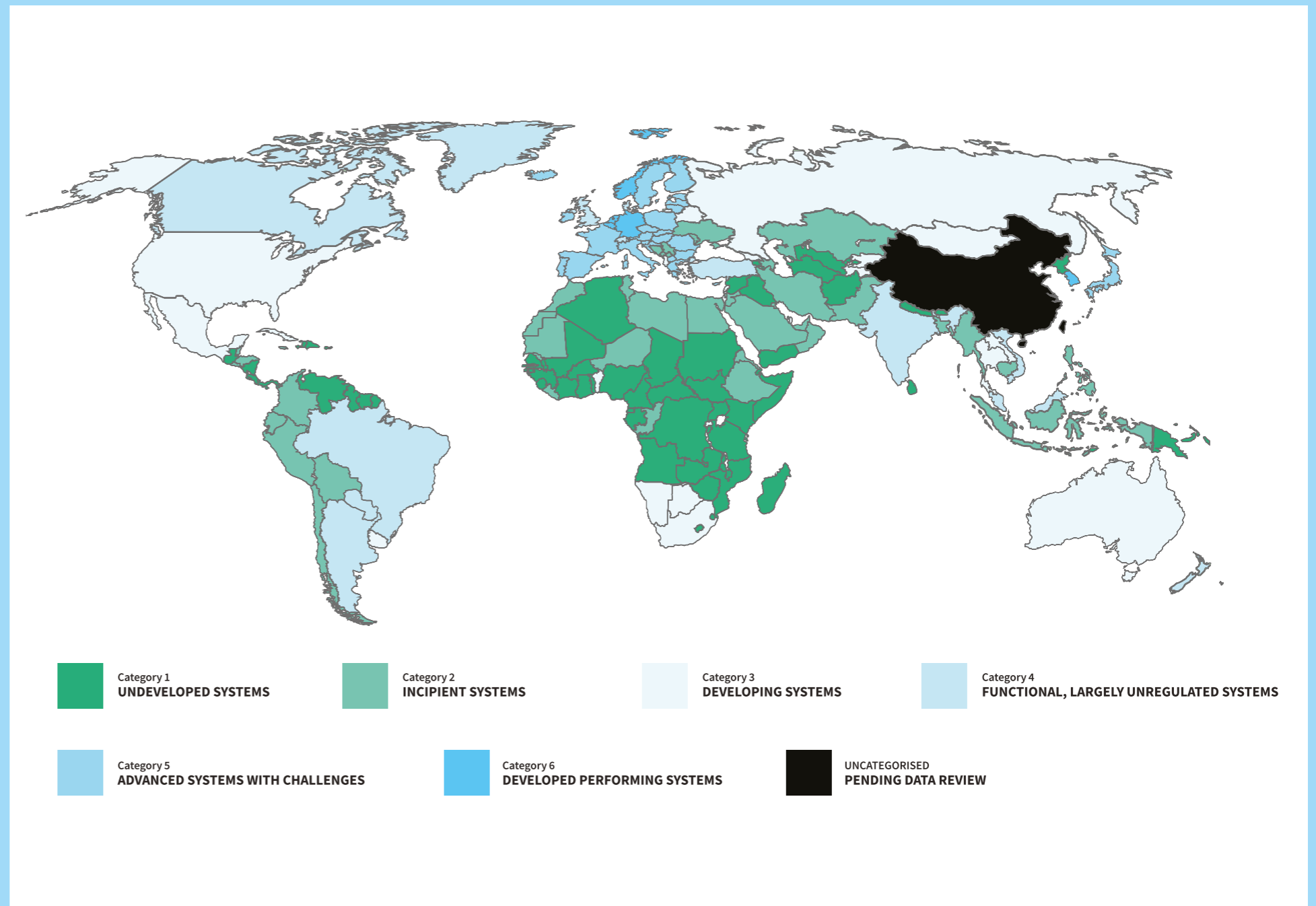
Plastic Waste Management Framework

In 2023, an estimated 70% of plastic waste remained uncollected and was dumped into landfills, subjected to open burning, or leaked into the environment. While countries work to improve and strengthen their waste management systems, there is no one-size-fits-all solution. Diverse national circumstances, varying stages of progress in waste management, and unequal access to resources underline the need for countries to employ a range of strategies to improve their waste management efforts and move towards a circular economy.

As part of our efforts to educate and inform key stakeholders, we developed the [Plastic Waste Management Framework](#) with the support of Roland Berger. Six distinct categories of waste management and recycling maturities were identified from a meta-analysis of 192 countries. These assessments were made according to the characteristics of national stakeholders, infrastructure, legislation and operational models. The categories are:

1. **Category I: Undeveloped systems** – no regulation or infrastructure and where the informal waste picker sector plays a crucial role.
2. **Category II: Incipient systems** – basic waste regulation but only limited collection and end-of-life treatment infrastructure.
3. **Category III: Developing systems** – functional waste management systems driven primarily by market-based mechanisms.
4. **Category IV: Functional, largely unregulated systems** – functional waste management systems, yet recycling rates have plateaued at around 20% to 25% due to limited regulatory pressure.
5. **Category V: Advanced systems** – complex waste management systems are firmly in place, supported by strong expertise and institutions. They are well-regulated but may still face challenges in specific areas.
6. **Category VI: Developed performing systems** – the most advanced waste management systems. Their expertise and best practices can serve as exemplars.

The framework outlines 27 policies and actions that can be deployed to reduce plastic waste pollution and increase plastic circularity in an economically and environmentally sustainable way. The intent of the framework is to support and inform governments developing national action roadmaps to move up the waste management hierarchy and improve plastic recycling rates. We believe that this will be important as countries move on from negotiating to implementing the ILBI for plastic pollution.



Testing Solutions for Change



The Alliance to End Plastic Waste’s unique operating model gives us the flexibility to experiment and develop untested ideas. That is crucial to advancing solutions that enable plastic circularity and reduce unmanaged waste because we can de-risk promising ideas that can then be scaled and replicated. The projects we support are carefully chosen with that in mind.

When selecting projects, we look for opportunities to fill crucial gaps in research, waste management or recycling that will give a boost in their local or regional context. In short, we look for weak links that a well-targeted project can strengthen. Typically, this means providing capital to get a project off the ground or initial working capital to scale projects that are in the growth stage. In some cases, it means funding scientific research.

The projects we highlight in this report demonstrate the range of work that we fund, as well as the different countries

where our projects are situated. Some projects are still at the applied research stage — investigating whether solutions can work effectively and safely. In other cases, the project aims to upscale a solution and show it can be economically viable. Others still, aim to boost capacity on the ground or improve the working conditions of those doing some of the hardest jobs in the waste management value chain — the waste pickers. In all cases, these projects are carefully designed with their local context in mind and have been independently assured by DNV.

- a. Working hand-in-hand with city governments to create effective circular waste management systems. – Project STOP Jembrana, Indonesia
- b. Reusable take-out and delivery container system. – Megloo, Japan
- c. Connecting supply and demand for recyclables digitally. – Eco Digiclean Klongtoei, Thailand

Testing Solutions for Change

Education, Innovation and Renewal: Keeping Durban’s Rivers and Beaches Clean



While seemingly endless stretches of golden sand give the laid-back coastal city a reputation as “South Africa’s playground”, two large flash floods in the last five years deposited tonnes of plastic waste along its coastline. It was this recurring disaster that galvanised collaboration and the launch of the Inkwazi Isu project in June 2022. Rather than focusing only on cleaning up, the aim was to prevent plastic waste from getting into the environment in the first place.

In 2023, with Alliance funding, the project completed the upgrade of seven waste sorting and aggregation sites. Six more site upgrades are in progress, set to be completed in July 2024, which will further increase the city’s capacity to sort and recycle plastic waste. The upgraded sites will be fed by waste collected from landfills, dumpsites, households, and schools, through the efforts of municipal waste workers — or bought from waste pickers.

Over a thousand community volunteers also take part in regular clean-up campaigns along rivers and beaches, recovering tonnes of waste and restoring the natural environment. The effort is supported by Inkwazi Isu’s waste ambassadors, who help raise awareness around separating waste and preventing plastic waste leakage.

This builds on the ambassadors’ work in their communities. Educational programmes on how to identify and sort plastic waste have been conducted in 50 schools, encouraging students to collect their plastic waste from home. These collection programmes contribute around 100 tonnes of plastic waste for recycling every month.



Inkwazi Isu

In a country where waste management is hindered by limited and unequally distributed resources, the Inkwazi Isu project brings the public and private sectors together in a coordinated effort to divert plastic waste from being dumped in the environment. The four-year programme funds upgrades to sorting and aggregation facilities, community education, the establishment of an innovation hub, as well as beach and river clean-ups.

This unique collaboration between government, industry, and civil society in Durban is on track to make a serious dent into the city’s plastic pollution problem, diverting plastic waste from the Amanzimtoti and eZimbokodweni river catchment areas.

LOCATION

Durban, South Africa

PROJECT PARTNER

South Africa Healthcare Foundation

ACHIEVED

17,527

Tonnes of plastic waste collected and diverted to managed streams for valorisation¹

15,827

Tonnes of plastic waste supplied to or directly utilised in mechanical recycling processes to produce high quality plastic recyclates²

39

Organisations engaged in 2023

29,585

Participants reached through education programmes³

43

Net increase in formal jobs created⁴

206

Informal waste workers benefitting from either improved income, working conditions and/or social benefits⁵

UN SDGS



¹ 13,548.5 tonnes assured for 2023 reporting period
² 13,037 tonnes assured for 2023 reporting period
³ 29,435 assured for 2023 reporting period
⁴ 43 assured for 2023 reporting period
⁵ 206 assured for 2023 reporting period

Testing Solutions for Change

Improving Lives and Building Waste Management Businesses in India

LOCATION

Bengaluru, Delhi,
Kochi, Pandhurna,
and Coimbatore, India

PROJECT PARTNER

Saahas Waste Management Private Limited (SWPL)



Let's Transform

India's five million sanitation workers often work in hazardous conditions, where fatalities are a matter of course — India estimated that between 2018 and 2019, at least one sanitation worker succumbed to the unsafe and unsanitary conditions every five days.

The Let's Transform initiative aims to build ethical supply chains by training and upskilling informal waste workers on their journey to become micro-entrepreneurs while diverting low-value plastic from landfills and water bodies. Saahas Waste Management Private Limited (SWPL), an enterprise that provides end-to-end waste management services and works for environmental and social change based on the principles of a circular

economy is driving the initiative, which began in April 2022 and entered its second phase in May 2023.

Both phases have focused on social inclusion for the informal waste sector, including waste aggregators and scrap dealers. Informal waste workers are extremely significant in the handling of India's domestic waste. Together, the informal waste community and its value chain manages more than 90% of the country's waste, estimated at 63 million tonnes a year, a number projected to grow to 3.4 billion tonnes per year by 2050, unless managed sustainably.

Across the two phases, the project has worked with five micro-entrepreneurs in Bengaluru, Delhi, Kochi, Pandhurna, and Coimbatore. They received financial

and managerial support to formalise their businesses and enable them to move towards sustainability, while also ensuring cleaner and safer working conditions for the informal waste value chain workers.

These workers, in turn, help to maximise the recovery of low-value plastics including flexible films and packaging, diverting these from landfills and water bodies, to be sent for co-processing in cement kilns or to recyclers. The project has also provided the micro-entrepreneurs with training in bookkeeping, on health and safety, labour laws, and responsible waste management practices.

In phase II, which ended in early 2024, the project team helped the micro-entrepreneurs to add value to the sourced

waste and divert a portion of it towards recycling. They were taught to use the Saahas-developed digital traceability tool, TRACER, designed to track the end-to-end movement of plastic waste, providing both transparency and access to data.

For the Alliance, SWPL is documenting their activities and lessons learned, enabling a deeper understanding of best practices and critical dependencies to replicate and scale an innovative approach to a just transition for waste workers.

ACHIEVED

8,108

Tonnes of plastic waste collected and diverted to managed streams for valorisation¹

8,102

Tonnes of plastic waste valorised²

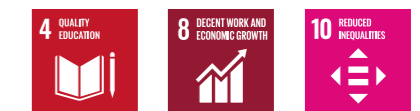
8

Organisations engaged in 2023

46

Informal waste workers benefitting from either improved income, working conditions and/or social benefits³

UN SDGS



¹ 4,635 tonnes assured for 2023 reporting period

² 4,635 tonnes assured for 2023 reporting period

³ 9 assured for 2023 reporting period

Testing Solutions for Change

A Cooperative Approach to Community Benefit While Dealing with Plastic Waste

LOCATION

Rio de Janeiro, Brazil

PROJECT PARTNER

Circular Action BV



BVRio

Brazil is the world's fourth largest producer of plastic waste, and Rio de Janeiro, its second largest city, generates more than 9,000 tonnes of municipal solid waste per day. Of this, just 0.5% is diverted from landfills. Waste pickers are responsible for 90% of the recovery of recyclables, usually on foot, dragging carts, or on motorbikes.

Besides increasing plastic recovery and recycling rates in the metropolitan region, BVRio aims to improve the lives and working conditions of informal waste collectors who play a vital role in recycling system.

Under the BVRio initiative led by Circular Action BV and supported by the Alliance, residential and commercial enterprises that have separated waste available for pick up can post this online via the waste-trading app, KOLEKT. Once alerted, the cooperative sends a truck to pick up the waste. The recyclables are then sorted, baled, and sold to aggregators and recyclers, with the proceeds kept by the cooperative.

The cooperative has doubled the number of its collection points and increased the number of collection trucks from one to three. As a result, it is now collecting four times the amount of recyclables.

Our funding enabled BVRio to lease the vehicles used to pick up the waste and lay the foundations for a cooperative-based approach to tackle plastic waste in the city. The initial success of the project has paved the way for BVRio to secure further funding from other sources to sustain the impact.

The project will continue to build on its success, with a view towards further enhancing the collection at the cooperative. The same cooperative model will also be scaled and replicated at additional small and medium-sized cooperatives in Rio de Janeiro.

ACHIEVED

2,878

Tonnes of plastic waste valorised¹

110.7

Informal waste workers benefitting from either improved income, working conditions and/or social benefits²

UN SDGS



¹ 1,473.09 tonnes assured for 2023 reporting period

² 110.7 assured for 2023 reporting period

Testing Solutions for Change

Tomorrow's Roads Built with Plastic Waste

LOCATION

Singapore, Thailand and India

PROJECT PARTNER

National University of Singapore (NUS), Chiang Mai University (CMU), the Federation of Thai Industries (FTI), Central Roads Research Institute of India (CRRI)



ACHIEVED

2 Field tests of road material incorporating plastic waste completed in Singapore and Thailand

9 Number of organisations engaged¹

UN SDGS



Paving Green Roads

The Paving Green Roads study is a research and development collaboration with various universities and research institutes to investigate the mechanical performance, health, safety, and environmental impact of incorporating plastic waste into asphalt roads. This not only presents an important market opportunity for difficult-to-recycle plastic waste but is also vital in fully understanding the implications of integrating such materials into road surfaces.

A comprehensive suite of test methods were utilised to understand the impact of incorporating plastic waste into road construction. This includes assessing the mechanical performance to comply with road authorities' requirements,

the potential health and environmental impacts, including the release of microplastics and particulates into the air as well as the potential pollutants in water run-off.

Since the project's launch in 2020, the Alliance's partners at the National University of Singapore (NUS), Chiang Mai University (CMU), and the Federation of Thai Industries have studied the optimal material mix for incorporating plastic waste into asphalt application and the impact on mechanical and environmental performances for the selected road conditions. In the first quarter of 2023, the NUS team established sections of road with asphalt containing plastic waste, along with control sections for comparison. These included both urban

arterial road and expressway so they could compare the performance of the roads subject to different conditions. In Thailand, the CMU team did the same for sections of rural road in the Chiang Mai area.

The results for the construction phases in both Singapore and Thailand suggest that there are no significant differences in the concentration of airborne particulates (PM2.5 and PM10) at the test and control sites as the road surface was being laid. In-field data collection and analysis were completed over a period of nine months in Singapore and six months in Thailand. The results demonstrate that there is no significant difference between the control and road sections that incorporated plastic waste from the field testing,

from the perspectives of both mechanical performance and health and environmental impact.

Field trials will get under way in 2024 in a separate workstream of the project in India. This will be managed by the Central Roads Research Institute (CRRI) of India, with the trial location based in Raebareli, Uttar Pradesh in northern India. The chosen location will provide a robust test of the plastic waste incorporated road, with temperatures ranging from 2°C in winter to as high as 46°C in summer to verify the mechanical performance across seasonal temperature fluctuations. CRRI has obtained approval for the trial from the National Highways Authority of India and construction is expected to be completed in the first half of the year.

¹ 4 assured for 2023 reporting period from the Singapore site

Testing Solutions for Change

Turning Plastic Waste into Value in Kenya's Capital



Mr Green Africa

Scattered across the city of Nairobi are a network of dedicated locations for plastic waste collection, including buy-back centres, small retail shops called dukas, and petrol stations. Set up by the Alliance's project partner, Mr Green Africa, these locations enable plastic waste to be exchanged for cash or Green Points that can be used to purchase daily goods and supplies. Mr Green Africa aggregates the collected plastic waste and transforms it into recyclates that can be used as feedstock to produce new plastic products.

Mr Green Africa aims to scale community-based plastic waste collection in the country and supply brand owners and industrial buyers with traceable, high quality recycled plastic. Seeking to build

a financially sustainable business model that retains social and environmental impact at its core, it was the first recycling company in Africa to be designated a Certified B Corporation in 2021.

With the Alliance's support, Mr Green Africa aims to enhance its collection and processing capabilities across the region. The project will bring the community on board to increase plastic recycling rates, reinstate value into the waste stream, and contribute to the circular economy via an integrated approach that combines a technology-driven plastic collection model with incentivisation. This enables waste collection at source to integrate informal waste workers, micro-entrepreneurs, and consumers into a formal value chain, while promoting consumer participation,

encouraging recycling, and improving material traceability.

Key areas of focus include scaling the development of a household collection system to supplement their existing network of informal waste pickers; developing food grade conversion capacity for PET; and building infrastructure to drive the holistic collection and development of recycling solutions for all plastic types, including hard-to-recycle plastic.

To date, Mr Green Africa has one production line up and running, with a second in the commissioning phase. The Alliance is sponsoring a third line which will be commissioned by the end of 2024. In 2023, the project also began work on a Pre-Processing Hub, a facility

built on a nearly five-hectare site where plastic waste will be manually sorted from an inlet flow of mixed plastics to improve plastic homogeneity and produce high-quality bales. Construction on the hub has since been completed in June 2024.

LOCATION

Nairobi, Kenya

PROJECT PARTNER

Mr Green Africa

ACHIEVED

3,663

Tonnes of plastic waste collected and diverted to managed streams for valorisation¹

2,470

Tonnes of plastic waste supplied to or directly utilised in mechanical recycling processes to produce high quality recyclates²

US\$900,000

Funding committed by other parties to the project

16

Organisations engaged in 2023

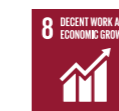
18

Net increase in formal jobs created³

2,305

Informal waste workers benefitting from improved income, working conditions and/or social benefits⁴

UN SDGS



¹ 3,147 tonnes assured for 2023 reporting period
² 2,203 tonnes assured for 2023 reporting period
³ 18 assured for 2023 reporting period
⁴ 2,304.9 assured for 2023 reporting period

Testing Solutions for Change

Supporting and Celebrating Vietnam’s Informal Waste Pickers

LOCATION

Hanoi and
Ho Chi Minh City,
Vietnam

PROJECT PARTNER

VietCycle



ACHIEVED

4,419

Tonnes of plastic waste collected and diverted to managed streams for valorisation¹

4,259

Tonnes of plastic waste supplied to or directly utilised in recycling processes to produce lower quality plastic recyclates²

17

Organisations engaged in 2023

1,151

Informal waste workers benefitting from improved income, working conditions and/or social benefits³

UN SDGS



Plastic Cycle

In Vietnam, more than 90% of plastic waste is collected by its informal sector, with an estimated 10,000 to 16,000 informal waste collectors working daily in Hanoi and Ho Chi Minh City. This workforce plays a vital role in Vietnam’s waste management, often providing the sole means of recyclable waste collection for municipalities.

The Alliance worked with VietCycle, a for-profit scrap collection and recycling company whose mission is to help develop a strong recycling industry in Vietnam, with the aim of improving the

working conditions and income of informal waste collectors.

Through the Plastic Cycle project, over 1,000 waste collectors received practical and valuable social welfare support for the first time, in the form of health insurance and monthly rent subsidies. They also received personal protective equipment. Funding from the Alliance has also helped improve the efficiency of VietCycle’s operations with the purchase of two trucks and four balers.

The first phase of the project was completed in April 2023, ahead of schedule, thanks to the strong engagement and

grassroots work with the informal sector. That led to the approval of phase II — an expansion into Ho Chi Minh province.

The project concluded in January 2024 with a closing ceremony, during which the waste collectors shared their experiences and the positive impact of the project on their lives. “Every month, I feel secure because I have protective equipment and insurance to take care of my health,” said Ms Tran Thi Hoa who works in Hanoi.

Others spoke about the effect the project had on how they viewed their work. “I never thought my work would receive so much attention and support

from so many people,” said Ms Le Thi Luong who also works in Hanoi, “Before, when I went to work, many people said rude things. But the project helped me understand that I am doing something meaningful for the environment.”

¹ 4,199 tonnes assured for 2023 reporting period

² 4,199 tonnes assured for 2023 reporting period

³ 1,151 assured for 2023 reporting period

Testing Solutions for Change

A Concrete Solution to the Plastic Waste Problem

LOCATION

Cape Town,
South Africa

PROJECT PARTNER

Center for Regenerative Design and
Collaboration Global



ACHIEVED

172

Tonnes of plastic waste collected and diverted to managed streams for valorisation¹

172

Tonnes of plastic waste supplied to or directly utilised in recycling processes to produce lower quality plastic recyclates²

UN SDGS



CRDC South Africa

The Center for Regenerative Design and Collaboration (CRDC) is tackling plastic waste through regenerative design — by converting waste into a high-value construction material. With the Alliance’s support, CRDC is turning a mix of plastics into a concrete additive with useful properties in construction.

CRDC’s innovative technology means their facilities can accept hard-to-recycle plastics — including PVC, polypropylene, and polystyrene — and turn them into a patented product,

RESIN8. This concrete additive is suitable for structural and non-structural concrete, and can be used in numerous applications, including concrete blocks and pavers, pre-cast concrete, and poured-in-place concrete. Depending on the application, concrete made with RESIN8 can be up to 15% lighter and stronger.

Concrete applications using RESIN8 exceed ASTM standards which are the international benchmark for material performance. Testing has demonstrated an increase in compression strength,

flexibility, fire resistance, thermal resistance, and acoustic properties. The material itself can also be recycled. It can be crushed and re-used, and has a low embodied energy production footprint. There is also no leaching or micro-plastic release after utilisation in concrete. Research published in 2023 showed that RESIN8 can also be used in 3D-printed concrete³.

The Alliance has previously collaborated with CRDC to establish commercial plants to produce RESIN8 in York, Pennsylvania, and San José, Costa Rica. In 2023, the

Alliance supported the scaleup of the company’s Cape Town pilot plant into a commercial scale operation. Housing company, Bitprop, is using RESIN8 in its bricks and their projects demand for 350 tonnes per month. By the final quarter of 2023, the plant produced 90 tonnes. It is expected to be at full capacity by the end of 2024.

¹ 172.9 tonnes assured for 2023 reporting period
² 172.8 tonnes assured for 2023 reporting period
³ Oosthuizen, J. D. (2023) Construction and Building Materials. Vol 408, 133712

Testing Solutions for Change

Creating Value from Plastic Waste Along the Yangtze

LOCATION

Suzhou, China

PROJECT PARTNER

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Suzhou Urban Construction & Investment Development Co., Ltd (CTZS)



JingSu

The explosion of food delivery in China and the corresponding growth of single-use plastic containers, and cups and food trays has led to a massive increase in plastic waste in the country. The JingSu initiative takes on this issue, directing food and beverage container plastic waste towards collection points that have been set up around the city and in schools. In the process, the project helps to reduce the flow of plastic waste into the Yangtze River.

In the city of Suzhou, GIZ, Germany's development cooperation organisation, is addressing this through an initiative that diverts these plastics to one of more than 300 newly-upgraded and installed collection points.

The initiative brings together local authorities, businesses, educational institutions, NGOs, and residents to implement a sustainable system for managing food and beverage container waste. This includes developing strategies and building capacity at city level to monitor, collect, sort, and recycle low-value plastic waste; raising awareness among residents; using data-driven tracking platforms to increase traceability and recyclability; and exploring innovative business models and processing solutions for low-value plastics.

Working with local waste collector, Suzhou Urban Construction & Investment Development Co., Ltd (CTZS), JingSu has set up more than 197 drop-off points in three Suzhou districts. A further 101

collection points have been set up in the city's primary and junior middle schools. Collection began in stages from June 2022. In 2023, the project partnered with office buildings, government offices, and commercial areas to receive plastic waste for recycling.

By integrating a collection and sorting system for single use food and beverage containers into the city's waste management, it also increases the scope of what is considered recyclable.

Plastic collected under the initiative is transported to the newly upgraded Baiyangwan sorting centre, which began operations in October 2022, with a capacity for processing around 60 tonnes of all recyclables a day,

which are then baled and sold to recyclers. By December 2023, the centre was processing over 1,200 tonnes of food and beverage containers a month — well beyond its target.

The project is also conducting a "Plastic-Free Childhood" programme that rewards school children for the quantity of food containers they have collected with stationery made from the recycled plastic.

ACHIEVED

6,841

Tonnes of plastic waste supplied to or directly utilised in recycling processes to produce lower quality plastic recyclates¹

2

Organisations engaged in 2023

141

Participants reached through education programmes²

UN SDGS



¹ 6,439.9 tonnes assured for 2023 reporting period

² 64 assured for 2023 reporting period

Enabling the Ecosystem

Systems change to achieve sustainable waste management and a circular economy for plastic cannot be achieved by any one organisation. This complex challenge requires collaboration and collective action by governments, businesses, civil society, financial institutions, and academia at the global, national, and local levels. We see our role as sharing experience and expertise to enable this collective action.



As an independent non-profit organisation with members from across the plastic value chain, our mission is to foster collaboration to develop infrastructure and invest in systems to improve the collection and management of plastic waste. We do this while harnessing the innovation, incubating ideas, and accelerating the scaling of new solutions and technologies. Over the course of 2023, we engaged with 904 organisations, directly as well as through our network of project partners and strategic allies.

This involves engagement with all stakeholders, including local and national governments. Our objectives are to understand local and national needs and share our expertise and technical knowledge about waste management and recycling. When requested by governments, we can also articulate the on-the-ground realities of existing policy positions.

Securing external financing remains a roadblock for many of our project partners. Especially when operating in emerging markets, there are significant challenges to obtaining the capital required to trial the feasibility of nascent waste management and recycling solutions. How we support beyond awarding concessional loans and grants is by helping our project partners

unlock new avenues of funding from both public and private sectors, including development finance institutions, and private-sector institutions, such as Lombard Odier Investment Managers.

One example is [Mr Green Africa](#), a Kenya-based recycling company that sells pre-processed recycling materials with a traceable social and environmental impact, working closely with the informal sector and micro-entrepreneurs to do so. Through the Alliance's support, Mr Green Africa has since coalesced additional backers, enabling them to expand their operations in Nairobi.

While most of the work we do is focused on driving systems change at a macro level, we recognise that a holistic and sustained transition to a circular economic model requires behavioural change on an individual level as well. Therefore, our work with project partners extends beyond clean-up interventions and waste management or recycling trials, encompassing public education efforts intended to fundamentally shift the relationship societies have with their waste. As of 2023, the behaviour-change programmes we develop and roll-out with the support of other partners have reached over 270,000 members of the public.

- a. Launch of the End Plastic Waste Innovation Platform in Riyadh. – Plug and Play, Kingdom of Saudi Arabia.
- b. More than 230 executives joined the conversation at the Alliance's Pathways for Plastic Circularity Summit in Tokyo.
- c. Representatives of the local women's group meet with Alliance members and the Bersih Indonesia team.

Enabling the Ecosystem



The UN International Legally Binding Instrument on Plastic Pollution

In 2023, the Alliance had a presence at a variety of international meetings that bring together international stakeholders with a shared ambition to end plastic waste. These included Climate Week, the Basel, Rotterdam and Stockholm Convention meetings, the UN Framework Convention on Climate Change (UNFCCC) COP28, and the International Negotiating Committee on Plastic Pollution meetings in Paris and Nairobi.

As an accredited business and industry observer to the United Nations Environment Programme (UNEP) and the UNFCCC, we participate as an observer in relevant intergovernmental meetings in accordance with the core principles that negotiation and decision-making are the exclusive prerogatives of UN Member States.

At these international fora and others, we participate in side-events and in major groups and multistakeholder dialogues together with representatives of NGOs, youth, women, the scientific and technology communities, and national and local authorities. We have gained useful insights from these multi-stakeholder fora. They have facilitated the exchange of information and insights about key actions needed to end plastic pollution as well as the opportunities and challenges that the ILBI can address. These platforms continue to inspire further collective action and impact.

Once the ILBI is agreed, we see our role as one focused on implementation, and working quickly to convert the agreement into on-the-ground progress that tackles plastic waste.

- a. Circularity in Action showcase at the sidelines of the International Negotiating Committee meeting 2024.
- b. The Plastic Waste Management Framework outlines pathways for countries to increase recycling rates.

Catalysing Capital

The far-reaching impacts of the plastic waste crisis are substantial, yet the true scale and complexity of the problem are still underappreciated. An estimated US\$2.1 trillion is needed by 2040 to eliminate plastic leakage into the environment and adequately bolster downstream capabilities to cope with rising waste volumes.



a

While seemingly insurmountable, the failure to transition toward a circular plastic economy poses a threat to environmental and human health that will have much larger multigenerational consequences.

The Alliance plays a critical role in addressing this challenge, but we cannot make meaningful progress alone.

For this reason, we put collaboration at the core of our approach to catalysing public and private finance to support new ideas and projects across the plastic circularity value chain.

We are advocates for unlocking new pathways to catalyse capital through financial innovation and blended finance solutions. Our ability to

provide concessional capital and expert technical advice effectively de-risks projects, allowing a wider range of capital participants to fund promising initiatives and accelerate the transition to a sustainable future. We continue to work with leading financial institutions to structure tailored financial mechanisms that improve the flow of capital, as well as its transparency and accountability.

Our team recognises that there is still a lot of work to do on both the demand and supply side of the financing equation to ensure plastic circularity can become a reality. Different stages of the plastic value chain have different financing challenges and needs that remain unmet. Furthermore, potential capital providers are becoming increasingly diverse, necessitating better investment channels that simplify engagement, due diligence, and monitoring. There is a clear opportunity to further broaden capital participation and build creative financing mechanisms that bring the public and private sectors together in new, impactful ways.

The Alliance welcomes the constructive dialogue emerging from global initiatives like the UN-led ILBI on plastic pollution, including the marine environment. These dialogues are instrumental in advancing the development of new financing mechanisms and establishing a shared language and understanding among market participants. Such cross-sector cooperation is crucial as it not only broadens the scope of potential solutions but also aligns various stakeholders towards common goals, enhancing the efficiency and impact of our collective efforts.



b

We are laying the groundwork to continue driving this catalytic effort. In the coming years, the Alliance will be looking to build on engagements it believes have the greatest potential impact on delivering its long-term objectives. Our strategy, in close collaboration with governments, will focus on catalysing the capital ecosystem to tackle a pipeline of larger-scale interventions (US\$100 million+) in countries that have high rates of plastic leakage into the environment, geographies

where each incremental investment can make a material difference.

The Alliance is committed to fostering a vibrant capital ecosystem that not only addresses the immediate needs of the plastic waste crisis but also sets a strong foundation for long-term sustainability and resilience. We appreciate the continued support from our members and partners and remain optimistic about the progress we can achieve together in the coming years.

a. Unlocking the value of waste through recycling. – Inkwazi Isu, South Africa.

b. Alliance Board Meeting.



People Driving Impact

In 2023, the Alliance partnered with a female-led Indonesian social enterprise to overcome funding obstacles for their new food-grade rPET bottle-to-bottle recycling plant in Central Java.

“The Alliance saw our potential to make a real impact in Indonesia and stepped in with a concessional loan when traditional financing institutions would not.”

– Dian Kurniawati, Founding Partner, PT Dhara Daya Sustainea

PT ALBA Tridi Plastics Recycling Limited, a new joint venture between Alba Asia Plastics Recycling Limited and Dhara Daya Sustainea, secured a blue loan from the Asian Development Bank (ADB). Dhara Daya Sustainea, which is the local founder company and minority shareholder faced equity requirements it could not meet. Due to its lack of credit history, commercial loans were inaccessible or offered at prohibitively high rates. The Alliance stepped in, providing a US\$4 million concessional subordinated shareholder loan, enabling PT ALBA Tridi to meet their equity contributions to unlock a crucial loan of US\$44.9 million from the ADB.

The plant, set to process 48,000 tonnes of PET waste annually, will recycle 36,000 tonnes into food-grade rPET pellets, reducing plastic waste leakage and creating job opportunities, as well as uplift livelihoods for informal waste pickers and other workers across the plastic value chain.

Ongoing monitoring and technical assistance are being provided to ensure project success.

[Watch Dian's journey into sustainability here.](#)

Dian Kurniawati



Bersih Indonesia: Eliminasi Sampah Plastik is a public-private-people collaboration aiming to develop effective, replicable and commercially viable waste management systems in underserved communities in Indonesia.

Activities with Financial Institutions

The Alliance continues to proactively engage with stakeholders across the public and private sectors, including commercial banks, fund managers, multinational corporations, governments, Development Finance Institutions (DFIs), philanthropic organisations, and more.

In September 2023, we announced the inaugural closing of the Plastic Circularity Fund, a collaboration with Lombard Odier Investment Managers. Additionally, we initiated a partnership with the Indonesian government and a DFI, paving the way for forthcoming loan negotiations in 2024.

Our ambition is to further expand these efforts in the upcoming years, harnessing the specialised knowledge and resources of financial institutions to mobilise capital and use it to test and prove new ideas that will create a circular economy for plastic.



Recycled plastic pellets.

Plastic Circularity Fund

The first close of the Plastic Circularity Fund, a growth-focused private equity impact vehicle launched in partnership with Lombard Odier Investment Managers, marked a significant milestone in deepening available financing platforms targeting this critical sustainability theme.

Under a global and unconstrained investment mandate, the fund identifies unique opportunities across the plastic value chain, including collection and sorting infrastructure, technology-enabled recycling, and design solutions for improved plastic durability, reuse, and recyclability. Moreover, the fund adopts robust impact reporting principles that help ensure it can balance its dual mandate of delivering on sustainability goals while producing attractive risk-adjusted returns in the mid-teens.

The Fund made a first capital call in December 2023 to support a company specialising in refillable personal care products made with natural formulas. Over the last five years, the company has scaled quickly and built a strong following of loyal customers, preventing the production of more than 2.5 million single-use plastic packaging units.

As the initial seed investor and technical advisor to the fund, we look forward to playing a critical role in identifying, proving, and scaling more innovative companies like this one that will make plastic circularity a reality.

Equity & the Informal Sector

The informal sector plays an essential role in waste management for many emerging economies. Waste pickers collect, sort, trade, and sometimes, process discarded materials, including plastics. Often this work is completed under unhealthy or dangerous environments. With the majority of our projects sited in lower-income countries, the Alliance has a close proximity to the informal sector. We work closely with organisations that represent and employ these workers, and many of our projects seek to improve their livelihoods and working conditions. That has shaped our perspective on how to improve outcomes for informal waste workers across the board.



According to the World Bank, more than 15 million people worldwide work as informal waste pickers in locations with and without formal waste management systems. These workers tend to be the most socio-economically vulnerable and disadvantaged in their communities, often living in underserved areas, with limited access to clean food and water and sanitation, with no access to waste management services.

Informal waste pickers face numerous health and security hazards as they typically work on unmanaged landfills and at night in residential areas. They are exposed to hazards, including pathogens, chemical and biological risks, accidents, crime, and threats to personal safety. The work itself is hard, and informal workers are subject to musculoskeletal issues due to handling heavy loads,

poor ergonomics, and repetitive movement. Waste pickers, due to the heterogeneity of the sector, find it difficult to self-organise and generally have few employment benefits. They tend to come from disenfranchised groups in society and are frequently stigmatised, marginalised, and exploited, even though they provide an essential service and help municipalities save costs. Within these communities,

women are overrepresented, and often have no option but to take the lowest value work.

The transition to circularity will require more effective waste management, particularly in developing countries. If this shift is mishandled, informal workers are at risk of further economic and social harm. We believe that greater emphasis on inclusion is essential, and programmes targeted at the informal sector need to be developed in partnership with them to best mitigate their vulnerabilities.

Within the Alliance's current portfolio, we support 18 projects in 10 countries that involve the informal sector. One such, is our work with the African Reclaimers Organisation (ARO) in Johannesburg, South Africa, since October 2022, to establish facilities that provide a safe environment to sort, process, and sell recyclables. Prior to our involvement, waste plastic was being brought by waste pickers to a makeshift base of operations under a highway overpass. Plastic waste is now transported to a new safer sorting centre which has space for large quantities of waste to be sorted and aggregated for sale. The plastic waste is compacted on site with balers, making it easier and more economical to transport.

Another example is our engagement with Women in Informal Employment: Globalizing and Organising (WIEGO), a global network focused on empowering the working poor, with a focus on women, in the informal economy to secure their livelihoods. We leverage their expertise to better understand the systemic challenges waste pickers face, as well as support project partners that are driving capacity building, organising workers, and advocating for the rights of the informal sector.

In Vietnam, we have a partnership with [VietCycle](#), a for-profit scrap collection and recycling company that engages over 1,000 waste pickers, the vast majority of



which were women. These workers have since received economic and social support, in the form of health insurance and monthly rent subsidies, as well as personal protective equipment.

The Alliance believes that tapping into the informal sector's capabilities to enhance the performance of collection and recycling, while improving livelihoods and working conditions, will be vital to the transition to circularity. But we must be mindful to ensure that these workers are not left behind as countries and communities move up the waste management hierarchy and that actions targeted at improving outcomes for the informal sector need to be developed in partnership with them.

The diversity and scale of the informal sector means there is no one-size-fits-all solution to protecting workers and ensuring the transition to more sustainable waste management is just and fair. Local context matters, but governments, civil society and business can collaborate to establish social protections for waste pickers and that initiatives to uplift them are based on equal representation, universal social protection, and sustainable financing.

- a. Closing the Loop, Ghana.
- b. Let's Transform, India.

Equity & the Informal Sector



People Driving Impact

In South Africa, informal waste pickers — known locally as reclaimers — largely remain invisible, despite being critical contributors to waste management. The Alliance supports our project partner, African Reclaimers Organisation, to improve the recognition of reclaimers and educate the community about the vital work they do.

[Watch how Luyanda and the ARO team reclaim the future here.](#)

“If you look at the recycling economy it’s fully dependent on the hard work of men and women who wake up at three o’clock in the morning ... environmental agents that are not being recognised ... The challenges that we face in the process of integration are the same challenges every reclaimer faces every day: stigma.”

– Luyanda Hlatshwayo,
National Coordinator, ARO

“The community not understanding how important our job is in society is what bothers me. How can we train the public to view us as regular employees?”

– Justina, Informal Waste Worker, ARO

ARO unites 6,000 reclaimers under a single umbrella, gives them a voice, and provides the operational facilities to sort and sell the recyclables collected to the local recycling market.

Equity & the Informal Sector



Hilda Addah and Dana Mosora started the ASASE Foundation in 2017.

Women-owned Businesses

In 2022, we established a strategic partnership with WEConnect International, a leading global network that connects women-owned businesses with reputable buyers worldwide. Through the collaboration, we aim to amplify the social benefit of our work, in line with the UN Sustainable Development Goals, especially Goal 5 (Gender Equality) and Goal 8 (Decent Work and Economic Growth).

Before our engagement with WEConnect, the Alliance had already been providing support to businesses owned by women or targeted at enabling female entrepreneurship. One such example is the ASASE Foundation in Ghana, a social enterprise which works to create women entrepreneurs in plastic waste management. They do this by offering seed money, and technical and business training so that these women can build their own plastic recycling business and cash in on the value of the waste for a profit.

Taking the lead from WEConnect, we look forward to enhancing the work we do with women-owned businesses. Our partnership focuses on several key goals. First, it will identify and register women-owned businesses capable of contributing to or leading efforts to prevent plastic waste from entering the environment and advance a circular economy. Second, it will mobilise technical expertise and capital to support women-owned businesses in the waste management sector, including informal waste pickers, helping them modernise and upgrade their operations.

Additionally, the partnership will conduct research to identify the most pressing needs and effective interventions required to empower women entrepreneurs in the sustainability industry, particularly in waste management.



Inkwazi Isu brings the public and private sectors together to divert plastic waste from river catchment areas in Durban, South Africa.

Human Rights

Our purpose as an organisation is to deliver positive impact on the environment as well as the communities that we serve. Respecting human and labour rights is a key component of that mission.

In 2021, the Alliance committed to the UN Global Compact and its 10 principles on human rights, labour, the environment, and anti-corruption. Enacting these principles and establishing a culture of integrity are fundamental to fulfilling our responsibilities to people and the planet. As part of that commitment, we are taking steps to report on progress every two years.

The Alliance considers human rights and context-specific factors when screening for and monitoring projects, ensuring we support partners who act in the best interests of their direct and indirect workers. We play an enabling role: taking steps to ensure that project partners have the basic foundation and information they need so that they can implement best practices on the ground. This includes encouraging a robust health and safety culture, recognising the unique starting points of our partners on their Health & Safety journeys. By supporting the development of a Health & Safety Toolkit, our focus is on ensuring our project partners have access to the information and guidance they need to assess and mitigate risks in their operations relevant to their position in the plastics value chain.

In support of the Alliance commitment to the UN Global Compact, an in-house human rights due diligence programme was established in 2023. Assessments were undertaken at eight Alliance-funded projects in Africa. Through this collaborative effort and continuous dialogue, insights were shared and provided to our partners, enabling them to embark on continuous improvements.

Global Network & Governance

For the year ended December 31, 2023

Good governance is fundamental to the success of the Alliance. As a non-profit organisation, we value the trust placed in us by members, partners, and governments across the world. To foster trust and confidence, we are committed to transparency, accountability, and integrity in all our operations.

Our Leadership Team



JACOB DUER
President and CEO



SOPHIA PORCELLI
CFO and Vice President of Operations



NICHOLAS KOLESCH
Vice President of Projects



ALLISON LIM
Vice President of Corporate and Public Affairs



BRIAN SAVARIDAS
General Counsel and VP of Risk, Compliance & Legal



JUSTIN WOOD
Vice President and Head of Europe, Middle East & Africa

Our Governance

Our Officers

Our Officers guide our strategic direction.



JIM FITTERLING
Chair, Alliance to End Plastic Waste;
Chair and Chief Executive Officer, Dow



TOM SALMON
Treasurer, Alliance to End Plastic Waste;
Chairman and CEO, Berry Global Group
(retired)
(Until 9 November 2023)



JON MOELLER
Chairman, President and CEO,
Proctor & Gamble



KEVIN BAUDHUIN
Treasurer, Alliance to End Plastic Waste;
Chairman and CEO, Pregis
(As of 9 November 2023)

Global Network & Governance

For the year ended December 31, 2023

Executive Committee

Our Executive Committee provides recommendations to the Board of Directors for the approval of the Alliance's budget, programme objectives, material policies, and rules. Responsibilities include the approval of new Members, Strategic Allies, Supporters, and Advisors, as well as to provide guidance on projects to the leadership team.

Board of Directors

Our Board of Directors comprises all Members and is responsible for the general supervision of the Alliance, including the supervision of the executive management. The Board reviews and votes on proposals from the Executive Committee.

Membership Committee

The Membership Committee supports efforts to recruit, engage, and retain members. It supports staff at the Alliance in developing recruitment strategies to grow the membership, and encourages members of the Alliance Board to work as ambassadors to promote the Alliance to new organisations. It also provides guidance on proposals for refining the requirements and benefits of membership, and monitors the quality of the membership experience. The Chair of the Membership Committee provides regular updates on membership and recruitment matters to the Executive Committee and the Board of Directors.

Audit Committee

The Audit Committee reports to the Executive Committee and oversees the organisation's financial governance, risk management, and internal control practices. It reviews each of these items and, with endorsement from the Executive Committee, provides the Board of Directors with advice regarding the adequacy and effectiveness of policies in these areas. The Committee provides an open avenue for communication between independent auditors, Alliance management, internal auditors, and the Executive Committee.

Compensation Committee

The Compensation Committee is appointed by the Executive Committee and reports to the Officers, to carry out board responsibilities to evaluate and approve compensation packages for Alliance senior leadership. The Committee reviews and makes recommendations for Officers' approval on all compensation and benefits related decisions, in the spirit of Alliance's values and best practices on diversity, equity, and inclusion.

The Advisory Council was suspended in 2023.



Waste sorting line in Jembrana, Bali. – Project STOP, Indonesia

Member Directed Commitments

In addition to supporting the Alliance's work, member companies invest into their own projects that contribute towards addressing the plastic waste challenge. Known as "Member Directed Commitments" (MDCs), these pledges are intended to demonstrate the focus of member companies in eliminating plastic waste leakage and developing a circular economy for plastics beyond what the Alliance does.

Apart from external initiatives that further the Alliance's purpose, members can choose to deploy their MDC capital into Alliance-led projects. For the former, we assess these projects against a set of criteria, including materiality and additionality, before qualifying them as a commitment. As of May 2023, member projects with a total value of US\$ 1.9 billion have been qualified, with US\$ 921 million¹ already spent.

Since the Alliance was founded in 2019, the sustainability landscape has evolved and most member companies now pursue their own independent initiatives to drive plastic circularity, in line with ESG principles. We are reviewing the continued role of MDCs to assess their continued relevance

¹ Out of Assurance scope

Global Network & Governance

For the year ended December 31, 2023

The Alliance was started by engaged business leaders with a clear mission to end plastic waste entering the world's environment. Today, we are focused on developing a circular economy for plastic and convene more than 70 companies across the plastic value chain with local communities, civil society groups, intergovernmental organisations, and governments.

Our Executive Committee Members



Our Strategic Allies

Our strategic allies are leaders in their fields, helping us inform, identify and execute our projects at scale.



Board of Directors



Our Supporters

Our supporters are passionate about our work. They bring expertise, insight and fresh perspectives that enable us to maximise our global impact.

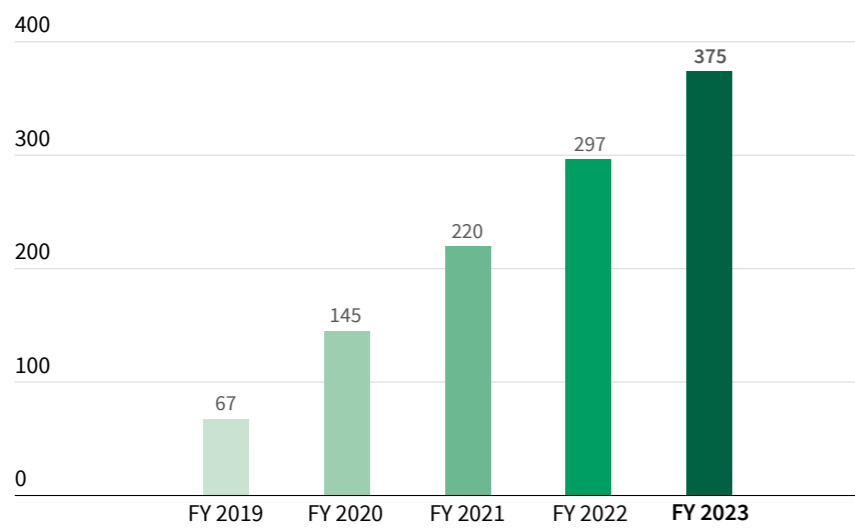


Financial Overview

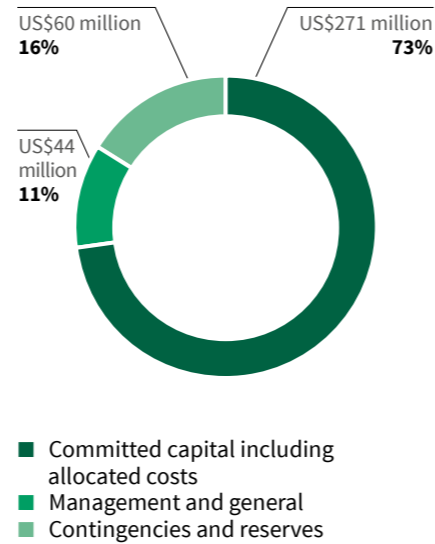
For the year ended December 31, 2023

In 2023, we generated US\$78 million in revenue, bringing our cumulative total revenue since our start in 2019 to US\$375 million. Of this, 73% (US\$271 million) has been allocated to projects and other mission-related activities.

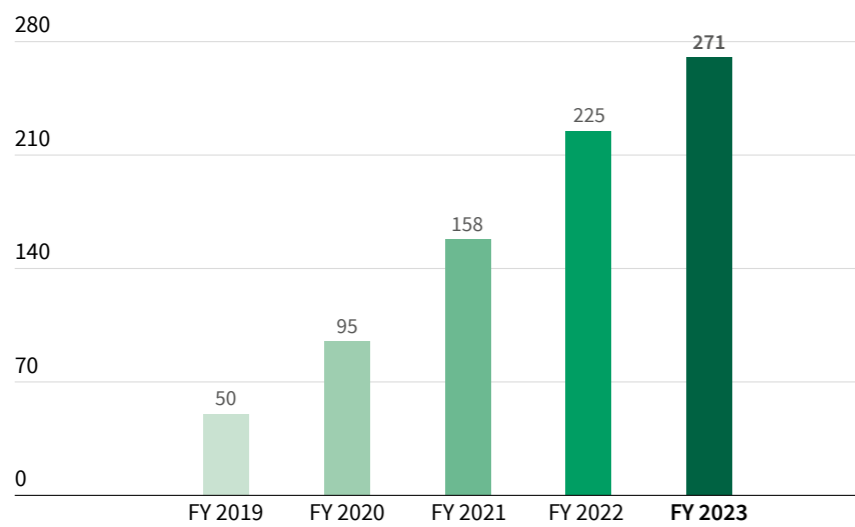
TOTAL REVENUE, SOLUTION ACCELERATOR FUND (cumulative, in US\$M)



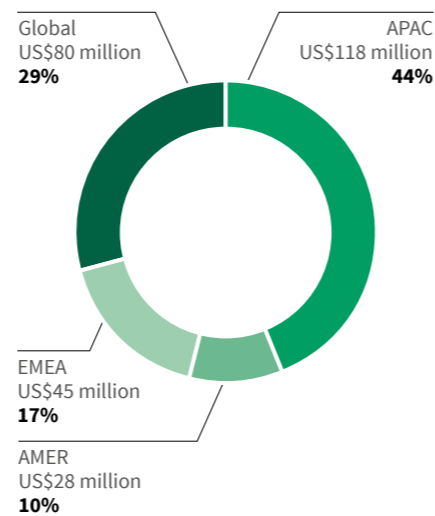
CUMULATIVE CAPITAL ALLOCATION (cumulative since inception in 2019)



TOTAL ALLOCATED CAPITAL, MISSION RELATED (cumulative, in US\$M)



REGIONAL ALLOCATION OF CAPITAL, MISSION RELATED (cumulative since inception in 2019)



You can be part of the solution.
To find out more, visit endplasticwaste.org

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