



Overview of end-of-life nets and ITN plastic waste management: Project EOLIN



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EOLIN project brief

What

- A circular economy initiative targeting ITN plastics.
- Assessing feasibility for the collection of End-of-Life Nets (EOLIN) /EOL Nets and net packaging for the creation of a sustainable circular economy

Why

- To help address and minimize the environmental impact of malaria prevention plastics in Nigeria aligning with BASF sustainability targets, Donor climate requirements, and UN SDGs

Who

- Partnership among the Nigeria Malaria Program, Funding organizations and their implementing organizations BASF (WA), BASF Public Health, Implementing Partners, Environment stakeholders

Status of Implementation

- Proof of concept (2023)
- Pilot implementations in 2 states (2023 -2024)
- EOL net/plastic recycling considered to be annexed to the campaign guidelines
- National level Scale up (Kano, Katsina, Kaduna, Taraba, Niger, Yobe, Oyo) 2025 and beyond

Guiding concepts

Integrability, Collectability and Recyclability





ITNs Life Cycle

Nets and packaging account for up to ~1-5% of total plastic in Africa¹

- As of Q3 2024, **3,277,162,930 (3.2 billion)**² ITNs have been distributed to countries affected by malaria since 2004
- For the same period **401,293,156 (401 million)** nets have reached Nigeria since 2004. Following their useful lifespan, ITNs composed of polyester or polyethylene, constitute a significant plastic waste in Nigeria
- **End of life practices:** primarily efforts have been focused on distribution campaigns with less attention paid to what happens to the nets after their useful life
- **Dated guidance:** proper use, handling and disposal of the nets is NOT clearly defined for the communities

¹ WHO estimate 2014

² AMP net mapping report Q3 2024

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What happens when ITNs reach their end of life?



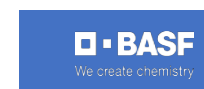
- Incineration by households
- As environmental waste
- As undisposed household waste
- Carrier of crops and other goods
- Fishing (capturing and transport)
- Protection/pest control for crops
- Protection for grains
- Cages for domestic animal, sponges, ropes



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Guidance and regulations relating to ITN waste management/end of life

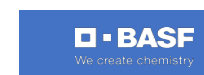
- Technical guidelines for the identification and environmentally sound management of plastic wastes and for their disposal <https://www.basel.int/Portals/4/download.aspx?d=UNEP-CHW-WAST-GUID-PlasticWastes.English.pdf> (Basel convention CoP 6 resolutions 2002)
- WHO recommendations on the Sound Management of Packaging for Long Lasting Insecticidal Nets (LLINs) November 2011
- WHO recommendations on the sound management of old long-lasting insecticidal nets. <https://www.who.int/malaria/publications/atoz/who-recommendation-managing-old-llins-mar 2014.pdf> (WHO/GMP)
- Consensus Statement on Repurposing ITNs: Applications for BCC Messaging and Actions at the Country Level <https://endmalaria.org/sites/default/files/ConsensusStatementonRepurposingITNs.pdf> (2018)
- The Global Fund Climate Change and Sustainability Statement. https://www.theglobalfund.org/media/11592/core_climatechangeenvironmentalsustainability_statement_en.pdf (2021)



Justification for managing end-of-life ITNs and campaign waste

- Encourage households to use effective ITNs as a norm.
- Manage campaign waste comprehensively, addressing plastic waste and end-of-life ITNs for environmental health.
- Address public health risks, such as pesticide poisoning from reused packaging and soil and groundwater pollution.
- Explore circular economy models to convert waste into valuable resources, create jobs, and promote inclusivity and gender awareness.
- Focus on climate change and reducing carbon footprints, earn carbon credits and access climate funding.
- Opportunities for additional financing for development initiatives.

Note: Sustainable waste management aligns with at least 10 of the 17 SDGs



Scope of EOL nets and ITN plastics waste management

Primary packaging: PE-PP bags

Secondary packaging: PET straps

Secondary packaging: PP sacks



EOLINS:
Polyester

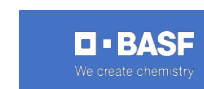


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Summary of EOL nets/waste management pilots in 3 States

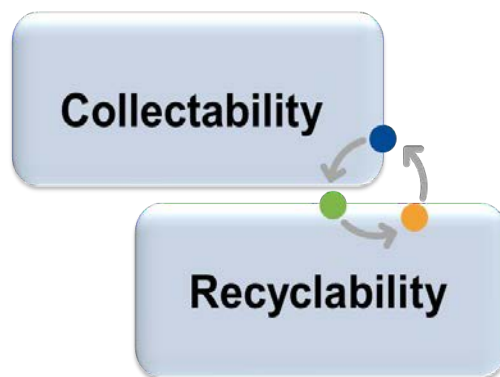
SN	State	Scale	EOL nets target	EOL nets collected	Key challenges	Lessons	Remarks
1	Cross River	25 DPs in 2 LGAs	3,355	241	Weak SBC relating to return of EOL nets	Early planning , clarity of roles SBC are key to success of EOL recovery	Larger pilot required to test concepts
2	Jigawa	All DPs in 4 LGAs	54,505	10,008	Reporting, DP operations, delayed reverse logistics	training on SOPs, messaging during HHR, message reinforcement	Integrability, collectability and recyclability tested with success
3	Ogun	6 LGA in Ogun Central	177,253	1,589	Existing market for EOL nets, weak community level SBC, DP operational issues	Sustain community engagement,	Integrability, collectability and recyclability is ongoing

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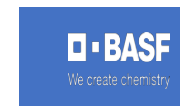


Closing the loop

Two independent steps that need to be synchronized



- For both it is critical to plan for what we will dealing with (plastic types, variety, quantity, physical form,...) at LGA level
- It is critical to have access to the micro-plan of the current campaign, the nets that were then distributed in the last campaign and ideally know 6 months ahead the nets to be distributed



Project EOLIN Guidelines: End-of-Life Applications

- In line with the ethos of Project EOLIN and with commitments from project partners to sustainably close the loop on EOLINs & associated ITN distribution waste, end-of-life applications for the waste materials collected must meet specified criteria and preferences as below:
 - ▶ Incineration or burning **must strictly** be avoided.
 - ▶ All food-contact applications **must strictly** be avoided.
 - ▶ Single-use applications **must** be avoided.
 - ▶ Local recycling options are preferred.
 - ▶ Where possible, re-integration of waste as secondary raw material into existing value chains is preferred.
 - ▶ Options to add value to local communities (from which the waste was collected) are preferred.

End-of-life applications from previous EOLIN interventions

Source	Material Type	Recycling Method	Circular Application
End-of-life ITNs	Polyester	Mechanical	• Textile yarn • Building materials
Primary ITN packaging	Polyethylene-Polypropylene blend	Mechanical	• Domestic plastics (non-food contact) • Building materials
Secondary ITN packaging: straps	PET	Mechanical	Technical grade PET (non-food contact)
Secondary ITN packaging: sacks	Polypropylene	Mechanical	Domestic plastics (non-food contact)



Empowering Women Through Upcycling

Transforming Waste Straps into Marketable Products



- Pilot program involving 3-day intensive training program for 300 women trained and equipped with upcycling skills. Utilization of 15,000kg of plastic waste straps, reducing environmental waste.
- The mobilization strategy involves the selection of 75 informal young women, aged between 18 and 27, from each of the four emirate council zones of Jigawa State: Dutse Emirate, Hadeija Emirate, Gumel Emirate, and Kazaure Emirate.
- WAPAN, JISEPA, BASF, UNICEF.



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Outlet for PET End-of-life nets - Inclusive of CO2 savings

Alternative application reported by WAPAN

- Rough blankets from EOLINs collected during the 2024 Jigawa

- Low tech
- Works on rPET from ITNs

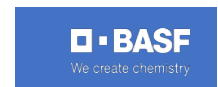


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Where do stand?

- 100% plastic waste management is achievable
- Total plastic waste forecast can be embedded in the micro-plan
- Presence and early engagement with the state waste management and/or EPA is critical
- A recycling option can be found for every type of plastic waste
- Solid recycling network and/or association does help. Capacity building may be required for some remote states
- It is too early to put a monetary value to the waste so focus on the environmental and societal impact... a lot of happy faces!

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EOLIN Project Key Achievements



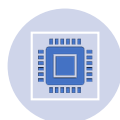
Stakeholders well sensitized about comprehensive waste management from ITNs (EOL nets/ITN plastics)



Development of a protocol for the implementation of end-of-life ITN recovery.



Development of tool for forecasting waste during microplanning. Tool estimates both weight and volume of waste to be generated from a campaign.



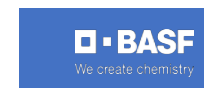
NMEP/SMEP/IPs knowledgeable about conduct of rapid assessment of household KAP regarding end-of-life nets using tools developed by the project.



Availability of integrated messages for EOLIN and campaign plastic packaging

- The circular economy model loop closed in Jigawa
- Training provided for ITN campaign implementers and SMEP to self-implement comprehensive waste management
- Pilots fully implemented in 2 States and the third one planned for Q2 2025
- 6 GF states currently self implementing comprehensive waste management with BASF providing support on the recycling segment
- National recycling networks (WAPAN) involved in campaign waste management.

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National scale up of the comprehensive management of campaign waste



There will be campaigns in 7 states in Nigeria in 2025 to distribute close to 20 million ITNs.



Microplanning have been completed in the states and a comprehensive waste management plan for end-of-life nets and other plastic waste have been developed for each state.



All waste will be collected/recovered and recycled.



BASF is providing TA to implementers and SMEPs and providing linkages with recyclers working with WAPAN and other recycling net works

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Challenges with recovery of EOL nets

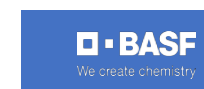
- Below target recovery of end-of-life ITNs
- Weak attention to issues of campaign waste management
- Weak partnerships / integration
- Sub optimal knowledge/ implementation practices
- Poor funding for waste transport

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Project EOLIN Success - Key Take Aways

- ✓ **EOLIN can be successful and integrated when planned correctly**
- ✓ It is best that timing for **collections be aligned with campaigns** as distribution of new ITNs encourages return of EOLIN with correct SBC
 - ✓ Routine and continuous need to be integrated outside of campaign cycle – *methodology being assessed*
- ✓ **Effective partnerships identified early, and roles clearly defined**
 - ✓ Fully functional integration across campaign thematic areas should be emphasized – particularly in data management and logistics
 - ✓ The role the DP Supervisors in driving collection is critical and should be revised based on lessons learned
 - ✓ Local stakeholder and community engagement a key component
- ✓ **Stronger messaging for EOLIN return needs to be co-developed** to ensure community engagement and return on a larger scale
 - ✓ Explore innovative SBC
- ✓ **End process should be conducted at the end of collection** to understand process and implementation gaps
- ✓ In closing the loop, it is important to **ensure proper circularity at the end of each collection exercise** – food contact applications should be clearly prohibited in the MCH





TYPES OF OLD NETS TO BRING BACK TO THE DP



- PLEASE BRING THE OLD NETS THAT ARE NO MORE USEFUL IN THE HOUSES TO THE DISTRIBUTION POINTS.



HOW NOT TO DISPOSE OF YOUR OLD NETS



Do not dump in the drainage

Do not Burn

Do not use to cover plants

Do not dump on refuse sites

- PLEASE BRING THE OLD NETS THAT ARE NO MORE USEFUL IN THE HOUSES TO THE DISTRIBUTION POINTS.
- THESE OLD NETS CAN CAUSE PROBLEMS LIKE POLLUTION, DRAIN BLOCKAGE AND DAMAGE TO OUR ENVIRONMENT.

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Project EOLIN Team

A truly global effort

BASF West Africa



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Location: Lagos



Remy Jambon
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IPHA



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EOLIN/ campaign
waste on their
way to another
life



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Acknowledgements



- Nigeria National Malaria Elimination Programme (NMEP)
- Cross River/Jigawa / Ogun States Ministry of Health and Malaria Elimination Programmes
- The United States President's Malaria Initiative (PMI) Nigeria and USA
- The Global Fund for AIDs, TB and Malaria
- Global Health Supply Chain – Procurement and Supply Management (GHSC-PSM)
- Breakthrough ACTION Nigeria (BA Nigeria)
- Catholic Relief Services (CRS)
- Malaria Consortium (MC)
- Society for Family Health (SFH)
- Alliance for Malaria Prevention (AMP)
- The leaders and members of the communities that have hosted the assessments

Menti questions

1. How many of you are interested in EOLIN?
2. What policies need to be developed?
3. By whom?
4. What support is needed by AMP for your country?
5. Has the recycling network been mapped?
6. What is their role?
7. Has the Ministry of Environment been engaged?
8. Do they have a role?



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