

Upcycling The Legacy Waste

Tapas  in collaboration with

RAMBOLL

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About The Campaign

India's cities are grappling with a mounting legacy waste crisis— vast dumpsites filled with decades of unmanaged garbage, polluting air, soil, and water. In response, the **Upcycling The Legacy Waste Campaign** was launched as a strategic intervention to tackle this issue head-on.

Through scientific waste remediation, community engagement, and policy-driven solutions, this initiative aims to reclaim land, restore environmental balance, and promote sustainable waste management practices.

The campaign focuses on a multi-pronged approach, including bio-mining, waste segregation at source, and sustainable disposal solutions. By collaborating with local authorities, environmental experts, and citizens, the Campaign seeks to transform hazardous landfill sites into productive spaces. This initiative not only mitigates pollution but also fosters a circular economy by recovering valuable resources from waste.

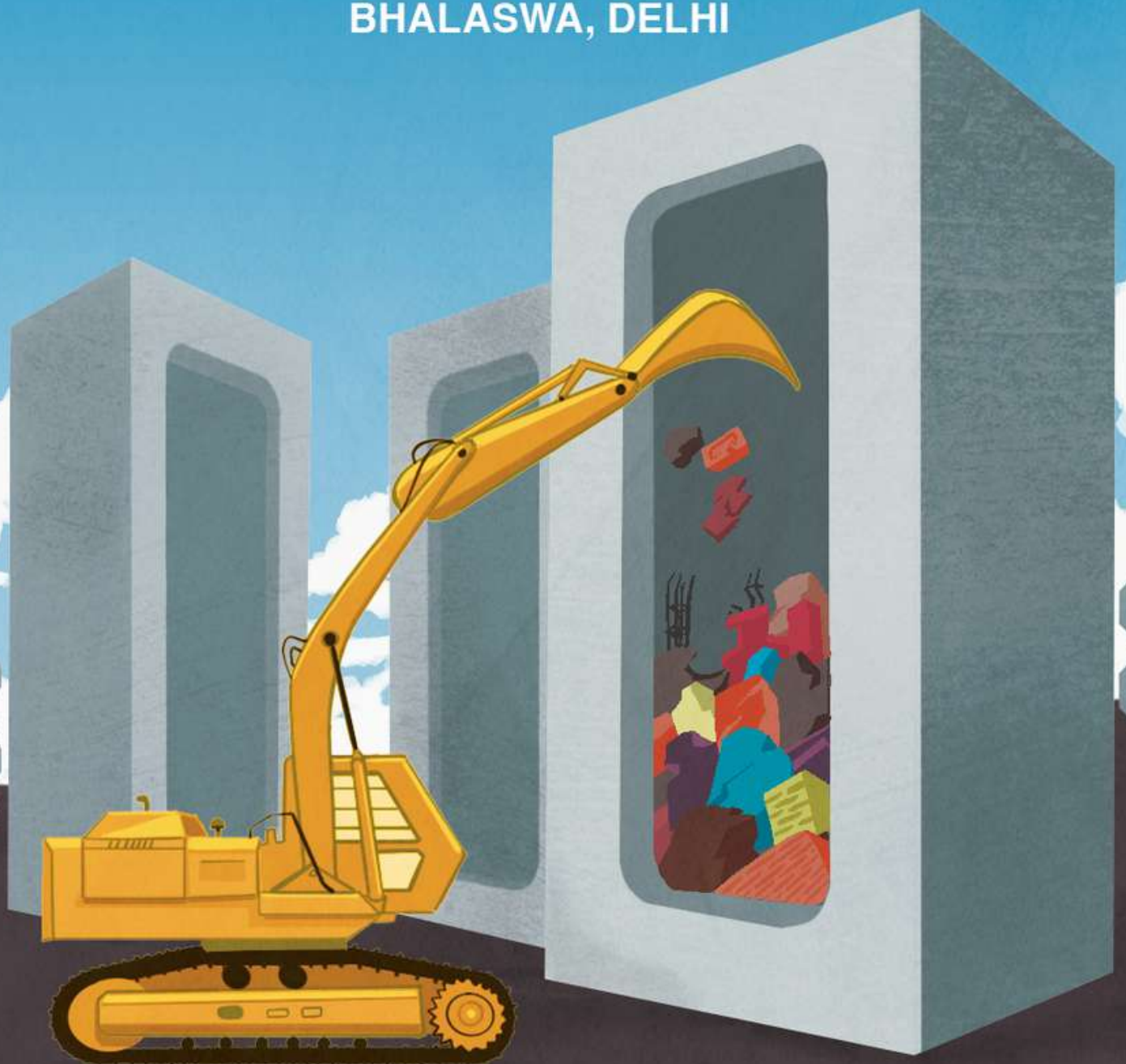
Tapas

↑UPCYCLING THE LEGACY WASTE

RAMBOLL

Tapas 

BHALASWA, DELHI



With our

Upcycling The Legacy Waste Campaign

we contributed to
the following



SUSTAINABLE DEVELOPMENT GOALS

8 DECENT WORK AND
ECONOMIC GROWTH



9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE



11 SUSTAINABLE CITIES
AND COMMUNITIES



12 RESPONSIBLE
CONSUMPTION
AND PRODUCTION



13 CLIMATE
ACTION



17 PARTNERSHIPS
FOR THE GOALS



The Mission

The **Upcycling The Legacy Waste Campaign** is a pioneering initiative led by Tapas Foundation in collaboration with Ramboll India to tackle one of Delhi's most pressing environmental challenges—legacy waste in landfills. This campaign is a sustainable effort to reduce pollution, reclaim landfill space, and repurpose waste into construction materials.

By transforming construction and demolition debris into eco-friendly bricks and pavers, the campaign is not just minimizing waste but also reducing the demand for fresh natural resources. Through this initiative, we aim to create a circular economy where waste is not just discarded but repurposed for a sustainable future.



HIGHLIGHTS



50 tons of legacy waste repurposed



30,000 bricks manufactured from recycled materials



**6 new jobs created
(2 women, 4 men)**

These figures highlight how a focused initiative can drive tangible environmental and social change, paving the way for a greener and more sustainable Delhi.

LOCATION



Bhalswa Landfill, New Delhi

**By processing legacy waste at the source,
this campaign aims to:**



**Reduce landfill size and free up land
for other sustainable uses.**



**Minimize pollution by cutting down
emissions from decomposing waste.**



**Improve community health by reducing
exposure to hazardous waste.**



**Set a replicable model for other
landfill sites across India.**

THE PROCESS

The process revolves around recycling construction & demolition (C&D) waste and landfill deposits to create eco-friendly products like bricks, pavers, and dumpcrete blocks.



Step by Step:

- **Collection & Segregation:** Waste is carefully sourced and segregated from the Bhalswa site.
- **Processing:** Recycled aggregates and sand are extracted after thorough cleaning and sieving.
- **Mixing:** Materials are proportionally combined to prepare a concrete mix using:
 - Cement: 10%
 - Recycled Aggregates: 50%
 - Recycled Sand & Ash: 40%
- **Molding & Vibration:** The mix is placed into molds and compacted using vibration tables to eliminate air bubbles.
- **Demolding & Curing:** Products are demolded after a few days and then water-cured for up to 28 days to ensure strength and durability.
- This closed-loop method not only reduces the use of virgin resources but also prevents recyclable materials from ending up back in landfills.

TESTING STANDARDS

Strength Test of Compressed Earth Bricks (SCEBs)

Mr.Gunraagh Singh Talwar, Bhalswa, North Delhi -110033, Email:betterbhalswa@gmail.com									
	Raw Materials								
Date (Mfg)	DC04: Washed Silt: From Burari C&D plant (%)	DC01: Bottom Ash Bawana Land Fill (%)	Cement OPC (%)						
10-Jul-24	50.00	40.00	10.00						
10-Jul-24	50.00	38.00	12.00						
	14 days (25/07/2024) SCEBs					28 days (09/08/2024) SCEBs			
Date (Mfg)	Block Code	Dry Weight (kg)	Size (mm)	Breaking load (kN)	Strength (kg/cm2)	Dry weight (kg)	Size (mm)	Breaking load (kN)	Strength (kg/cm2)
10-Jul-24	A	3.315	230x110x77	169.7	68.40	3.323	230x110x77	193	77.79
10-Jul-24	B	3.026	230x110x76	201.0	81.01	3.021	230x110x76	231	93.10
	28 days (09/08/2024) SCEBs								
Date	Block Code	Wet weight (M2)	Dry weight (M1)	Weight Difference	% water absorption				
10-Jul-24	A	3.652	3.323	0.329	9.90				
10-Jul-24	B	3.368	3.021	0.347	11.49				
Note:									
1. The result listed refers only to the tested sample(s) and applicable parameters(s). Endorsement of products is neither inferred nor implied.									
2. Total liability of our organisation is limited to the invoiced amount.									
3. Samples will be destroyed after issue of test result unless otherwise specified.									
4. This report is not to be reproduced wholly or in part and cannot be used as evidence in the Court of law and should not be used in any advertising media without our special permission in writing.									
5. SCEBs samples produced by hydraulic press machine									
6. Block sample should collected within 10 days of test result.									

Compressive Strength Test of Paver Blocks & Cubes

Mr.Gunraagh Singh Talwar, Bhalswa, North Delhi -110033, Email:betterbhalswa@gmail.com					
28 days (09/08/2024) Concrete Pavers (I shape) 60 mm					
Purpose: Concrete Paver					
Mix Ratio: M20 (1:1.50:3.0)					
Cement (OPC 43):			1.0		
DC04 (C&D Waste) <4.75 mm:			1.5		
DC04 (C&D Waste) >4.75 mm:			3.0		
			5.5		
Date	Block Code	Dry weight (kg)	Dimension (mm)	Breaking load (kN)	Strength (kg/cm2)
10-Jul-24	A	3.060	200x160x60	503.6	202.97
10-Jul-24	A	3.079	200x160x60	512.6	206.60
28 days (09/08/2024) Concrete Block					
Purpose: Concrete block for walling					
Mix Ratio: M10 (1.0 :3.0:6.0)					
Cement (OPC 43):			1.0		
DC04 (C&D Waste) <6.00 mm:			3.0		
DC04 (C&D Waste) >6.00 mm:			6.0		
Date	Block Code	Dry weight (kg)	Dimension (mm)	Breaking load (kN)	Strength (kg/cm2)
10-Jul-24	A	3.060	100x100x100	232	93.51
10-Jul-24	A	3.079	100x100x100	239	96.33
Note: 1. The result listed refers only to the tested sample(s) and applicable parameters(s). Endorsement of products is neither inferred nor implied. 2. Total liability of our organisation is limited to the invoiced amount. 3. Samples will be destroyed after issue of test result unless otherwise specified. 4. This report is not to be reproduced wholly or in part and cannot be used as evidence in the Court of law and should not be used in any advertising media without our special permission in writing. 5. Bricks sample produced by sample can be collected within 10 days of test result.					

Sieve Analysis of Recycled Aggregates (DC01–DC04)

Sieve Analysis (Sample Code DC01)			
Weight: 300 Grams			
S. No.	Sieve Size	Unit	Retention Qty. (Grams)
1	20.0	mm	4.43
2	12.5	mm	37.74
3	10.0	mm	28.25
4	4.75	mm	53.40
5	2.36	mm	47.40
6	1.18	mm	51.51
7	600	Microns	23.39
8	300	Microns	24.60
9	150	Microns	15.76
10	90	Microns	7.60
11	75	Microns	0.46
12	Pan		4.46
	Total Weight		299.00

Sieve Analysis (Sample Code DC02)			
Weight: 1000 Grams			
S. No.	Sieve Size	Unit	Retention Qty. (Grams)
1	>20.0	mm	40.00
2	10-20	mm	185.00
3	4.75 -10.0	mm	410.00
4	<4.750	mm	365.00
	Total Weight		1000.00

Sieve Analysis (Sample Code DC03)			
Weight: 1000 Grams			
S. No.	Sieve Size	Unit	Retention Qty. (Grams)
1	>20.0	mm	100.00
2	10-20	mm	110.00
3	4.75 -10.0	mm	160.00
4	<4.750	mm	630.00
	Total Weight		1000.00

Sieve Analysis (Sample Code DC04)			
Weight: 100 Grams			
S. No.	Sieve Size	Unit	Retention Qty. (Grams)
1	4.75	mm	2.51
2	2.36	mm	1.68
3	1.18	mm	3.57
4	600	Microns	2.24
5	300	Microns	2.79
6	150	Microns	4.28
7	90	Microns	11.95
8	75	Microns	2.15
9	Pan		67.85
	Total Weight		99.02

Cube Strength Analysis of Different Mixes

Composition Made (M10)

Sample Code: C2

S.No	Raw Mat.	Composition (Ratio)	%	Remarks
1	Cement (OPC 43)	1	10	
2	DC02	3	30	
3	DC01 (C&D)	6	60	
		10	100	

Composition Made (M10)

Sample Code: C3

S.No	Raw Mat.	Composition (Ratio)	%	Remarks
1	Cement (OPC 43)	1	10	
2	DC03	3	30	
3	DC01 (C&D)	6	60	
		10	100	

ENVIRONMENTAL BENEFITS



60 tons of legacy waste has been diverted from the Bhalswa landfill, directly reducing methane emissions and soil degradation.



The use of recycled aggregates, sand, and ash minimizes the need for fresh extraction of natural resources such as river sand and stone, contributing to conservation.



The project showcases a low-carbon alternative for construction, supporting climate-resilient infrastructure development in urban India.

SOCIAL IMPACT



The initiative generated employment for 6 individuals, including 2 women and 4 men, who were involved in material processing, brick creation, and site-level operations.



Beyond employment, this project helped impart new skills in eco-construction methods, opening future livelihood opportunities in sustainable industries.



By integrating waste recovery with community upliftment, the campaign reflects how responsible corporate action and grassroots execution can create measurable and lasting impact.

SUSTAINABILITY GOALS



Future phases will explore solar-powered curing units and water recycling to further minimize environmental footprint.



There is also a long-term vision of developing a training hub for waste-to-resource technologies, equipping more workers with green skills and promoting entrepreneurship in this space.



This campaign is not just a solution for one site — it is a scalable model that can reshape how Indian cities manage their waste and construct their futures.

**Click on the link below to
check out the video!**



Conclusion

The **Upcycling The Legacy Waste Campaign** at **Bhalswa** is more than just a recycling initiative—it is a proof of concept that demonstrates how landfill waste can be transformed into valuable construction materials. By diverting 60 tons of waste from landfills and producing 30,000 eco-friendly bricks, this project has set a precedent for sustainable urban development.

Beyond waste reduction, the campaign has created employment opportunities, promoted circular economy practices, and provided a scalable model for landfill remediation. As discussions for expansion continue, the project stands as a testament to the power of collaboration, innovation, and responsible urban planning. By integrating sustainability into infrastructure, this initiative moves one step closer to a cleaner, more resource-efficient future for Delhi and beyond.



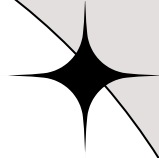








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