From Awareness to Action
KCC-Awareness Centre Toolbox for Reducing Plastic Pollution

SCIP plastics

Sustainable Capacity building to reduce Irreversible Pollution by Plastics

Link to SCIP Plastics project website
https://www.scip-plastics.com

Link to AWC Facebook page
https://www.facebook.com/scip.awc.kcc

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Sustainable Capacity building to reduce Irreversible Pollution by Plastics

Workshop with NGO and CBO representatives.

(Sheikh Enjamamul Haque, 2023)

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1 INTRODUCTION - HOW TO USE THIS TOOLBOX

Established in 2022, the Awareness Center forms an integral part of the ‘Sustainable Capacity Building to Reduce Irreversible Pollution by Plastics’ (SCIP Plastics) project. The SCIP Plastics project is a collaboration between the German partners Bauhaus-Universität Weimar and the ISOE – Institute for Social-Ecological Research and the Bangladeshi partners Khulna University of Engineering & Technology (KUET), Chittagong University of Engineering & Technology (CUET) and Khulna City Cooperation (KCC).

The project aims to foster the sustainable transformation of municipal waste management systems in the Ganges Delta by strengthening waste prevention and reducing marine plastic pollution. The international and interdisciplinary research team scrutinizes pivotal components focusing on Khulna’s municipal waste management system while concurrently implementing measures to mitigate the leakage of plastic waste into the environment. Their work spans various aspects of the municipal waste management process, encompassing disposal, collection, recycling, and storage.

A tangible outcome of the project is the establishment of a Knowledge Transfer Hub at KUET’s campus, aimed at facilitating long-term solutions. The Awareness Center complements this Hub in Khulna’s inner city, expanding its influence and engagement among waste experts and within the local community.

Waste Separation Workshop in the AWC.
(Senta Berner, 2023)

The project runs from December 2021 to December 2025 and receives funding from the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety, and Consumer Protection (BMUV) as part of the 'Marine Debris Framework – Regional hubs around the globe' (Marine:DeFRAG) program. For more information:

www.scip-plastics.com

This toolbox is created to empower staff at the KCC Awareness Center (AWC), NGOs, volunteer groups, and other organizations eager to begin awareness-raising efforts - especially around waste management. It serves as a practical starting point, offering easy-to-understand guidance and resources for those new to this work. It is not designed for professionals already experienced in moderation and awareness-raising. However, the factsheets offer valuable insights for beginners in waste management or anyone seeking detailed information about Khulna - making the factsheet collection especially helpful in these cases.

The toolbox is designed as a dynamic resource where information can be added, updated, or removed as needed. It is a living document, not a finished product – meant to evolve over time.

You are encouraged to engage with it actively: contribute new insights, refine existing content, or remove anything outdated or irrelevant.

What you see here is the current iteration – a starter kit that reflects the status quo. It is structured as a **jump-to guide,** so feel free to explore the sections most relevant to you and return to it as your awareness activities develop and progress.

What information can you find in the toolbox?

- Background information about waste management in Khulna.
- Scientific data and practical insights to help shape your awareness campaigns.
- Communication formats tailored to local needs and literacy levels.
- Practical examples to inspire and guide your activities.
- Ready-to-use materials you can adapt and apply directly in the field.

What is the structure of this toolbox?

1. **General Info AWC: Vision and Mission**
   Start here to understand the organization's goals and target audience. This will help you align your awareness efforts with the local context.

2. **Formats - General**
   An overview of different communication and awareness-raising methods. Explore various ways to engage your audience effectively, whether through talks, posters, or interactive sessions.

3. **Formats - Examples**
   Sample materials and templates that showcase effective awareness-raising tools. Browse these to get practical ideas and adapt them to your situation.

4. **Materials**
   Ready-made resources such as handouts, visuals, and other supportive content. These tools save time and help maintain consistent messaging.

5. **Scientific Information about Khulna / Waste Management**
   Evidence-based insights from the SCIP Plastics project on the waste management challenges and opportunities in Khulna. This section includes clear factsheets that can also be used for communication purposes like workshops, teaching materials, and posters. Use this to deepen your understanding and strengthen the credibility of your messages.

2 WHAT DRIVES US - AWC'S MISSION AND VISION EXPLAINED

VISION

A cleaner, sustainable future for Khulna City and the region, where informed communities and innovative practices work together to eliminate plastic pollution and ensure effective waste management for generations to come.

MISSION

We aim to serve as a central contact point in Khulna City, fostering collaboration among waste management practitioners, experts, and residents. By raising awareness, promoting mutual learning, and sharing the research outcomes, particularly those of the SCIP Plastics project, we aim to empower stakeholders and drive effective, sustainable waste management practices in Khulna and the surrounding region.

Open waste transfer point in KCC (Senta Berner, 2024)

The AWC's vision and mission are aligned with the UN Sustainable Development Goals, especially with:

11 - Sustainable Cities and Communities

11.6: By 2030, reduce adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.

12 - Responsible Consumption and Production

12.4: Achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment.

12.5: By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.

12.A: Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production.

14 - Life below Water

14.1: Prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution.

The Awareness Centre creates the interface between research activities, municipal services, and residents. It ensures the translation of research outputs to the local communities. Vice versa, the Awareness Centre guarantees that local residents can communicate their concerns and expectations and actively contribute to research activities.

In our workshops and trainings, we facilitate structured, interactive, and collaborative sessions where small groups can deeply engage with specific topics. In addition to these cross-sectional engagements with different stakeholder groups, such as Khulna City Corporation, NGOs, CBOs or teachers, we also facilitate practical training sessions, such as occupational health and safety and first aid instructions to improve the working conditions of (informal) waste workers. Our campaigns aim at widespread information sharing and awareness raising.

TARGET GROUP

- KCC Officials,
- Waste Workers,
- Khulna's Citizens,
- Professionals in the field of waste management, such as those specializing in recycling,
- Multiplicators in Khulna, such as Ward Councillors and NGOs or CBOs.

3 FROM KNOWLEDGE TO ACTION: METHODS AND ENGAGEMENT FORMATS – BUILDING AWARENESS THROUGH PARTICIPATION

Successful workshops, trainings, and awareness campaigns depend on more than just good content - they require skilled facilitation, interactive engagement, and clear goal-setting. While awareness campaigns differ from workshops and trainings in format and delivery, they too rely on experienced professionals to plan and implement them effectively. Regardless of the approach, all formats benefit from strong facilitation and thoughtful preparation to achieve their intended impact.

A key element in this preparation is setting clear and achievable objectives. SMART goals - Specific, Measurable, Achievable, Relevant, and Time-bound - provide a structured framework that enhances focus, tracks progress, and ensures accountability. They help facilitators and participants stay motivated and aligned, ultimately supporting more successful outcomes.

In the context of workshops and trainings, **trained moderators** play a vital role. They guide discussions, manage group dynamics, and ensure that learning objectives are met. By creating a supportive environment and adapting to various learning styles, they keep sessions focused, inclusive, and productive. Without skilled facilitation, workshops risk becoming disorganized, disengaging, and ineffective.

Conservancy Supervisor Workshop in June 2023. (Md. Mobashar Hossain, 2023)

Equally important is **interactive engagement,** which transforms passive learning into active participation.

Activities like group discussions, role plays, and hands-on exercises foster collaboration, encourage diverse perspectives, and build critical thinking and communication skills. This kind of engagement leads to deeper understanding, stronger teamwork, and more meaningful learning experiences.

SMART-Goals

- **S** Specific: Clearly defines what is to be achieved.
- **M** Measurable: Includes criteria to track progress and success.
- **A** Achievable: Realistic and attainable given the resources and constraints.
- **R** Relevant: Aligned with broader objectives or priorities.
- **T** Time-bound: Has a clear deadline or timeframe for completion.

Stall at the 2025 Health and Wellness Fair in Khulna
(Sheikh Enjamamul Haque, 2025)

General tools for effective moderation

A well-equipped moderator toolbox is key to delivering dynamic and inclusive workshops and trainings. It provides essential materials that support idea generation, interaction, and decision-making, ensuring a smooth and engaging process for all participants.

Idea collection & visualization

- Sticky notes – Ideal for brainstorming, gathering input, and organizing thoughts visibly.
- Markers (various colours) – Help highlight content and enhance visual engagement.
- Flipchart paper or whiteboards – Useful for summarizing ideas and capturing group input.

Group interaction & decision-making

- Voting tools – Stickers, coloured dots, or tokens allow participants to express preferences and prioritize ideas clearly.
- Signaling cards (e.g., red/yellow/green) – Support real-time polling and feedback during sessions.
- Name tags or table cards – Foster group identity and make communication easier.

Practical support materials

- Tape, blu-tack, or magnets – For displaying group work or posters.
- Scissors and glue – Enable creative and hands-on activities.
- Clipboards or writing pads – Provide a stable surface for note-taking in any setting.
- Timer or stopwatch – Keeps the session on schedule and activities focused.

These practical, easy-to-use tools not only encourage participation but also help structure activities, maintain focus, and foster a collaborative atmosphere. With the right preparation and materials, moderators can create workshops that are not only effective but also enjoyable and empowering for all involved.

„Options for Action“ KUET Campus Workshops with studetns (Md. Mobashar Hossain, 2024)

Campaigns

Environmental awareness campaigns are organized efforts aimed at educating and informing and encouraging positive behavioural change.

Purpose: To increase knowledge and inspire action.

Group size: Large groups.

Methods: Use of media (social media, posters, videos), community events, school programs.

Advantages	Disadvantages
↑ Enable widespread information sharing with large and diverse audiences.	↓ Information often does not lead to actual behaviour change.
↑ Influence attitudes by shifting public perception.	↓ Lack of direct interaction limits engagement and feedback.
↑ Maintain public attention through continued media coverage and messaging.	↓ It is unclear which parts of the message are understood or retained.
↑ Encourage action by pushing policymakers and industries to act.	↓ Impact is hard to measure and may be short-lived.

Campaign planning template

Subject	Action	General Examples
Step 1: Establish overall purpose, objectives, and outcomes		
Title	Create a short, engaging, and memorable title	
Goal	Define specific goals: What is the particular purpose of the workshop? (SMART Goal)	→ Raise awareness of plastic pollution → Encourage behaviour change, e.g., reduce single-use plastics → Promote alternatives, e.g., reusable bags, bottles
Target Audience	Who are you trying to reach? Be specific.	→ General public → Students and youth → Waste workers → Local businesses → Government agencies → Industries
Key Message or Key Question	What core messages do you want to communicate? What key question do you want to answer?	"Plastic never truly goes away." "Small actions lead to big change." "Choose reuse over single-use."

Campaign planning template (cont.)

Subject	Action	General Examples
Step 2: Select the action, activities, and communication tools		
Activities & Formats	List the methods and formats you'll use to deliver the message.	→ Street Clean-Up → Social Media Campaign → School Program → Plastic-Free Challenge
Communication Channels	Choose how to share your message.	→ Social media (Instagram, Facebook, TikTok) → Flyers and posters → Local radio or newspapers → Website or blog → Events and workshops
Step 3: Planning		
Materials Needed	List all resources required.	→ Educational materials (brochures, infographics) → Event supplies (gloves, bags, banners) → Multimedia content (videos, photos) → Merchandise (reusable bottles, bags)
Timeline	Develop a clear schedule from planning to follow-up.	
Budget	Estimate the costs and potential sources of funding or in-kind support.	→ Printing and materials → Media production → Promotional items
Venue	Select a suitable venue that can accommodate the number of people and planned activities, and is within your budget.	The Awareness Centre for groups up to 30 people. The Rajbandh Training facility for waste workers at the landfill.
Step 4: Implementation		
Step 5: Follow up		
Monitoring and evaluation	How will you measure the campaign's success?	→ Number of participants reached → Social media engagement (likes, shares, comments) → Feedback from surveys → Reduction in plastic use (if measurable) → Media coverage or policy influence
Follow-up	Plan how to continue or scale the impact.	Set up ongoing challenges or programs Form community / or voluntary eco-groups

Visit of KUET Primary school (Sheikh Enjamamul Haque, 2023)

Waste separation campaigns in NIrala Ward (Sheikh Enjamamul Haque, 2024)

Co-design workshop for poster campaign on KUET Campus (Sheikh Enjamamul Haque, 2024)

Stakeholder Workshop (Florian Wehking, 2023)

Workshops

Workshops are structured, interactive sessions where a small group of participants works intensively and with practical focus within a limited time to achieve a common goal. The emphasis is on cooperative and moderated teamwork, where participants actively learn new skills, apply existing ones, or develop new ideas. Facilitation guides communication and leads the group collectively toward a specific outcome.

Purpose: To co-create ideas and outcomes.

Group size: Small to medium-sized groups.

Methods: Interactive activities and group exercises designed to foster brainstorming, discussion, and evaluation – such as World Café, Mind Mapping, and Role Play – promote active participation and diverse perspectives.

Advantages	Disadvantages
↑ Encourage active participation and engagement from all attendees.	↓ Can be time-intensive and require careful planning to be effective.
↑ Foster collaboration and exchange of diverse ideas and perspectives.	↓ Group dynamics may sometimes limit participation from quieter members.
↑ Provide hands-on, practical learning experiences.	↓ Outcomes depend heavily on skilled facilitation.
↑ Build team cohesion and improve communication skills.	↓ May not suit very large groups without breaking into smaller sessions.

Workshop planning template

Subject	Action	General Examples
Step 1: Establish overall purpose, objectives, and outcomes		
Title	Create a short, engaging, and memorable title	
Goal	Define specific goals: What is the particular purpose of the workshop? (SMART Goal)	→ Knowledge sharing → Knowledge generation → Problem solving → Mediation
Target Audience	Who do you need to invite to reach your goal?	→ General public → Students and youth → Waste workers → Local businesses → Government agencies
Key Message or Key Question	What core messages do you want to communicate? What key question do you want to answer?	“How can we reduce littering in public spaces?” “Who and how are stakeholders involved in waste management?” “Rethinking waste collection”

Workshop planning template (cont.)

Subject	Action	General Examples
Step 2: Select the action, activities, and communication tools		
Activities & Formats	List the methods and formats you'll use to deliver the message/answer the question.	→ Brainstorming → World Café → Group discussion → Fish-bowl → 6 Thinking Hats → Games and Simulations → Friendly debate
Number of people	Depending on the selected format and the goal, invite the required number of people	Small groups (6–12 participants): Ideal for intensive collaboration, personal discussions, and individual feedback. Well-suited for problem-solving, or creative processes. Medium groups (12–25 participants): Good for structured group work with breakout sessions. Allows for a diversity of perspectives and sufficient interaction. Larger groups (25–40 participants): Possible with clear facilitation, division into small groups, and targeted methods (e.g., World Café). Personal exchange is more limited. For most interactive, hands-on workshops, a group size of 10–20 participants is optimal, allowing for both depth and diversity.

Workshop planning template (cont.)

Subject	Action	General Examples
Step 3: Planning		
Materials Needed	List all resources required.	→ Stationery: pens, papers, sticky notes → Multimedia content (videos, photos) → Merchandise (reusable bottles, bags) → Catering
Moderation	Who will moderate the workshop? Do you need an external expert?	Trained facilitator
Guest	Do you need external experts?	Depending on the workshop's focus: Expert speakers, may include scientific experts, practitioners, or other specialists with relevant experience.
Timeline	Develop a clear schedule from planning to follow-up. Develop a feasible agenda: breaks are important! Conclusions are important!	
Budget	Estimate the costs and potential sources of funding or in-kind support.	→ Printing and materials → Media production → Promotional items → Catering
Venue	Select a suitable venue that can accommodate the number of people and planned activities, and is within your budget.	The Awareness Centre for groups up to 30 people. The Rajbandh Training facility for waste workers at the landfill.
Step 4: Implementation		
Step 5: Follow up		
Monitoring and evaluation	How will you measure the workshop's success?	Feedback session, evaluation sheet
Follow-up	Plan how to build on the results of the workshop.	Share documentation

Useful workshop formats - from icebreaking to evaluating

Icebreaker

Getting to know each other matrix	
Aim	To introduce participants to each other
Prominent Feature	Matrix: The Matrix is a large grid where everyone answers the same questions in their respective columns, for all to see.
Procedure	The moderator prepares a matrix on facts, e.g. name, function, knowledge of the topic, questions on the topic. At the beginning of the meeting, everybody fills out the matrix. Optional: used as a 'talking wall'.
Results & Effects	Structured introduction: Lengthy introductions by individuals are avoided. Can be used for documentation.
Materials	Brown paper, pencils

Draw a Duck / Fold a Paper Aeroplane	
Aim	Initiating creative thinking, e.g. for design workshop. Warm-up for teams who know each other or part of an icebreaker session.
Prominent Feature	Draw or "craft" something.
Procedure	Sort yourselves into small groups (2-3 people) Optional: Dominant hand is kept behind back Moderator issues challenge: "Jointly draw a duck" or "Jointly fold a paper airplane" WITHOUT talking within XX minutes. Team members draw or fold alternatingly.
Results & Effects	Breaking hierarchy: performance depends on manual skills not on education or level or expertise in a specific field. Warming up manual skills like drawing or crafting. Team building.
Materials	Paper (one per team), markers (one per team)

Warm-up

Team Lineup	
Aim	Get to know each other for large groups (>10)
Prominent Feature	Self-organization, moving around the room
Procedure	Moderator asks questions, the team has to line up accordingly, e.g. years working in the field: line up from shortest to longest time, or group themselves, e.g. do you prefer sweet or salty popcorn? Moderator can run through a number of questions facilitating a quick "get-to-know-each-other". Optional: you can use the line up to group participants for the next part of your workshop.
Results & Effects	Especially in large groups people can learn interesting facts about each other in a short time It requires walking around the room, i.e. it is active and engaging.
Materials	none

Waste collection - creative thinking workshop (Senta Berner, 2024)

Warm-up (cont.)

Whispering Groups	
Aim	Brainstorming. Get a brief overview of opinions/ assessments of the participants.
Prominent Feature	Short discussion of questions in groups of 2 or 3.
Procedure	Impulse questions are discussed in groups of 2 or 3, often people sitting next to each other, 5 to 15 minutes. Then feedback to the plenary. Variation: Groups merge to lager groups of 4 or 6, share findings of previous discussion, discuss further, feedback to the plenary.
Results & Effects	Participants form an opinion and formulate their point of view. Allows also shy, quiet participants to take actively part. Liven up plenary discussions, as all participants have developed a point of view in the discussions and their resources have been activated.
Suitiable for	For reflecting on issues that are explored in greater depth in a detailed plenary discussion. For reflecting on issues/ presentations that have been presented before.

Role Play Workshop
(Senta Berner, 2024)

Working

Fishbowl Discussion	
Aim	Facilitating large group discussion on controversial issues and sharing the expertise of group members.
Prominent Feature	Part of a larger group discusses the question on behalf of the whole group; other participants can comment on the discussion.
Procedure	Large group forms an inner and outer circle. A question is discussed in the inner circle. Outside circle observes discussion and is invited from time to time to comment on the discussion in the inner circle. **Variation 1:** one chair in the inner circle remains empty and can be occupied by participants from the outer circle for a short time in order to give the discussion further impetus or contribute their own perspectives. **Variation 2:** someone can leave the inner circle or be “clapped off” by someone from the outer circle.
Results & Effects	Enables opinion-forming and clarification processes, even in larger groups. Enables differentiation of views and discussion of different points of view.
Suitiable for	Situations in which discursive processes need to be conducted in larger groups, but the group is too large to include everyone. Settings in which the knowledge of a group of specialists is to be made available to the plenum. Working on topics that are emotionally charged.

Working (cont.)

6 Thinking Hats	
Aim	Encouraging participants to explore various perspectives
Prominent Feature	Participants take on different roles according to the hat color.
Procedure	The **white hat** - information and facts: objective perspective. The **red hat** - emotions and intuition: express your feelings, intuitions and personal reactions (gut feelings without logical reasoning). The **black hat** - criticism and caution, potential risks, vulnerabilities and problems, potential failures or negative impacts. The **yellow hat** - optimism and positive aspects: positive thinking and constructive approaches to solutions. The **green hat** - creativity and innovation: free thinking. The **blue hat** - higher-level thinking and organization of the thinking process: goals, coordinating the individual hats, and monitoring progress. Optional: reduce number of hats.
Results & Effects	→ Depending on hat combination, → Developing innovative solutions, → Critical evaluation of proposed solutions, → Decision support (between alternatives), → Process improvement, → Feedback rounds.
Suitiable for	→ Creative thinking, → Design thinking, → Critical thinking.
Materials	Different hat colors (paper) or markers.

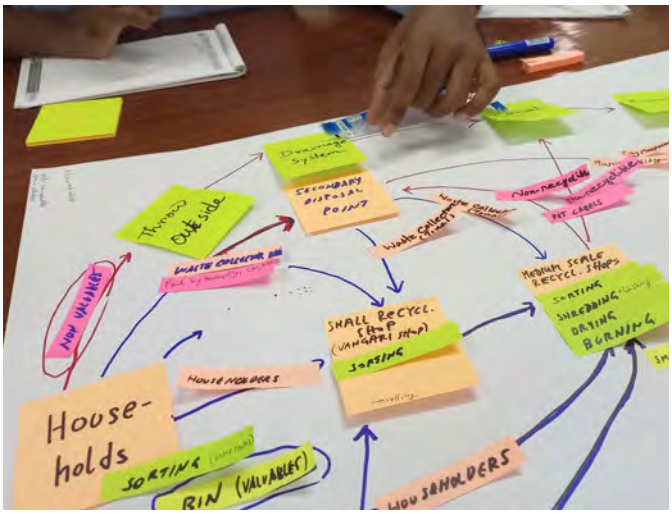
Role Playing Game / Management Game	
Aim	Decision making support, behavioral change, concept development.
Prominent Feature	Participants take on different roles within a specified scenario.
Procedure	Scenario and rules of the game are explained. Participants familiarize themselves with their roles. Groups develop their game strategy and then start to interact with other groups. Results are consolidated within a plenary session followed by one or two reflection phases.
Results & Effects	→ Understanding of decision making processes and possible conflicts → Breaking hierarchy structures → Behavioral change through reflection (looking into a problem from different perspective) → Developing specific skills and techniques
Materials	Prepare scenario and roles and conduct test runs. Or use an available role game Props/ tools for specific roles.

Six thinking hats (based on a illustration by Cienpies Design – stock.adobe.com)

Working (cont.)

Themed Café	
Aim	Produce usable results within a very short time.
Prominent Feature	Variation of the World Café Method
Procedure	Difference to the World Café: The same questions are not discussed at all tables in parallel, but different „topic areas“ are set up. For example, 2 tables work on topic A, another 2 tables on topic B, etc. Participants can choose work in topic areas according to their interests.
Results & Effects	Many topics and questions can be dealt with in a short space of time. Work primarily „in breadth“, not so much in depth. Usable, action-relevant results within a very short time. High motivation, as participants can select the most relevant topics and issues they want to work on according to their personal interests.
Suitiable for	For evaluation, further development, in-depth processing of central topics.
Materials	Brown paper, sticky notes, flipchart

Flash	
Aim	Brainstorming Get a brief overview of opinions/assessments of the participants.
Prominent Feature	Plenary session where all participants are actively involved.
Procedure	The moderator formulates a concise question Everyone then answers the question briefly (!) one after the other from a first-person perspective The answers are not commented on, but left to stand on their own. The discussion does not begin until the flashlight round has ended. Important: intervene when answers get too long.
Results & Effects	Participants form an opinion and formulate their point of view. Liven up plenary discussions, as all participants have developed a point of view in the discussions and their resources have been activated.
Materials	none



Stakeholder workshop (Lukas Sattlegger, 2023)

Presenting results/Evaluating

Market Space	
Aim	Presentation of results
Prominent Feature	Interactive „exhibition“ with discussion rounds
Procedure	Various aspects of workshop results are visualized on large-format posters. The information trail is set up at. At a set time, all group speakers are at their stands on the marketplace and are available to answer questions. Variation: only display posters. Tipp: can also be used in conference settings.
Results & Effects	→ Consolidation of previously developed work results. → Strengthens and enables „networking“ on the topics of the marketplace. → Intensifies the professional exchange on the aspects offered. → Break times are used „incidentally“ to gather information.
Suitiable for	→ Knowledge transfer to the participants, → Alternative to conventional presentations, → When a lot needs to be informed and reported on in a short space of time.
Mate-rials	Brown paper, poster, flipchart

Evaluating

5-Finger Feedback	
Aim	Structured feedback
Prominent Feature	Each finger represents a feedback category and is used as a prompt to provide a structured feedback.
Procedure	**Thumb – What I liked most:** Something the participant enjoyed, appreciated, or found particularly useful during the session. **Index Finger – What I will take away:** A key insight, learning, or action the participant plans to apply after the session. **Middle Finger – What I didn’t like:** Something that didn’t work well or could have been improved. **Ring Finger – What was meaningful:** An emotional or personal connection made—what resonated most or felt significant. **Little Finger – What I missed or wanted more of:** Something the participant felt was lacking, unclear, or would like to explore further.
Results & Effects	Participants are enabled to provide a structured feedback.
Suitiable for	This method is great for all age groups and can be done verbally, on sticky notes, flipcharts, or in written form.
Materials	Sticky notes, flipchart, form, see also Materials section (p. 48)

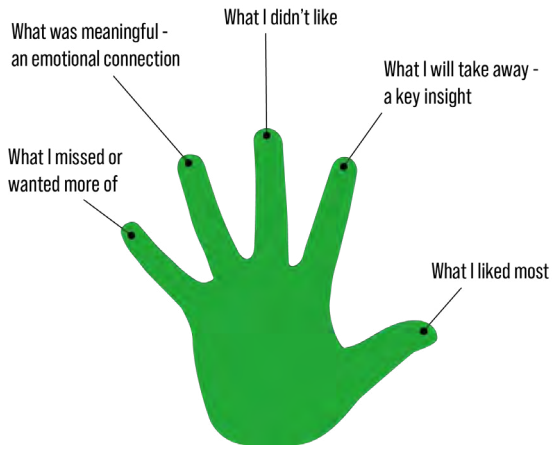
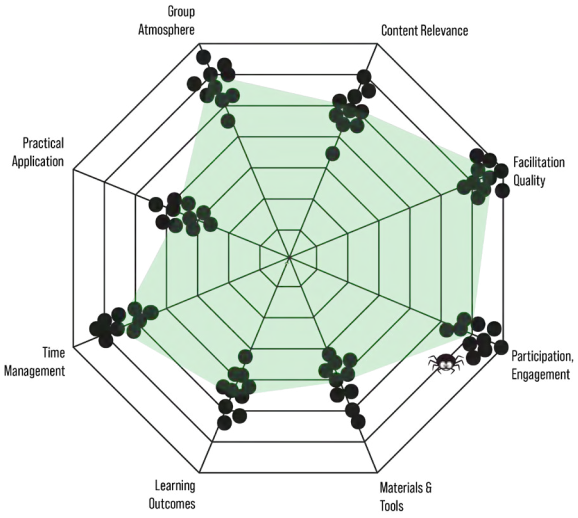


Illustration of 5-finger feedback (see page 48 for printable version)

Evaluating (cont.)

One More point Question	
Aim	Spontaneous assessment by team members
Prominent Feature	Sticky dots
Procedure	Each participant receives a sticky dot. The different option which are to be evaluated are presented on a table, whiteboard or flipchart. The moderator asks the question for the evaluation, e.g. what do you think is the most important issue identified in the brainstorming session? Participants place their sticky dots as they see fit. The moderator then asks questions about the individual assessments and the reasons for them. Variation: up to 3 sticky dots. You can work well with weightings here, e.g. by awarding two points to an option to emphasize the personal importance of your choice.
Results & Effects	Visualizes assessment
Suitiable for	Decision-making, e.g. determining key points/ topics
Materials	Sticky dots, or pens to draw dots.

Spider diagram	
Aim	Structured feedback and rating in different categories.
Prominent Feature	Visualized feedback in form of a spider diagram.
Procedure	Draw a Spider Diagram: Create a circle (or use a pre-drawn template). Divide it into 5–8 sections (like slices of a pie), each representing a key area of the workshop. Use concentric circles or radial lines to mark rating levels (e.g., 1–6 with 1 in the center and 6 at the outer edge). Label each axis with a relevant category (see example). Participants rate each area: Ask participants to place a dot or draw a line at the level they feel reflects their experience in each area. Once all ratings are placed, connect the dots to form a „web." Interpret the Web.
Results & Effects	The shape of the web quickly reveals strengths and areas for improvement. It can be done individually or collectively on a flipchart or whiteboard for group discussion.
Suitiable for	Suitable for medium-sized or large groups.
Materials	Printed spider diagram, Flipchart, see also Materials section (p. 49f)



Example of spider diagram feedbck (see pages 49 & 50 for printable versions)

Recycling Shop Owner Meeting (Md. Mobashar Hossain, 2023)

Conservancy Supervisor Workshop (Md. Mobashar Hossain, 2023)

Trainings

Trainings are structured, goal-oriented sessions designed to develop or strengthen specific skills, knowledge, or competencies in participants. They typically involve instruction, demonstration, and hands-on practice, led by a trainer or facilitator. The focus is on practical appli-

Purpose: To expand participants' knowledge, develop or enhance specific skills and competencies required for a particular role or task, and promote the practical application of learning.

Group size: Small to medium-sized groups.

Methods: **Interactive Lectures:** Combine presentations with Q&A sessions to actively engage participants and effectively deliver core knowledge;
Hands-on Practice: Provide practical exercises that allow participants to apply skills in simulated or real-world settings;
Role Play: Use scenario-based acting to develop communication, decision-making, and emergency response skills;
Group Discussions: Facilitate open conversations for sharing experiences, encouraging reflection, and deepening understanding.

Advantages	Disadvantages
↑ Provide focused skill development tailored to specific roles or tasks.	↓ Can be time-consuming and resource-intensive to organize.
↑ Encourage practical application through hands-on exercises.	↓ Effectiveness depends heavily on the quality of the trainer and materials.
↑ Enable direct interaction between trainers and participants for immediate feedback.	↓ May not address individual learning paces or styles equally.
	↓ Knowledge gained may not always translate into long-term behaviour change without follow-up support.

PPE Handout in Rajbandh Training Centre (Senta Berner, 2025)

5-Step planning template

Subject	Action	General Examples
Step 1: Establish overall purpose, objectives, and outcomes		
Title	Create a short, engaging, and memorable title	
Goal	Define specific goals: What is the particular purpose of the workshop? (SMART Goal)	→ Knowledge sharing → Knowledge generation
Target Audience	Who do you need to invite to reach your goal?	→ Waste workers → Local businesses → Government agencies → Youth
Key Message or Key Question	What core messages do you want to communicate? What key question do you want to answer?	→ Always use personal protective equipment (PPE); Always wear gloves, masks, and sturdy shoes to protect yourself from dangerous waste and germs → Reduce, reuse, and recycle: Simple actions to protect our environment → How can waste management officials build effective leadership to drive sustainable and impactful waste management solutions?
Step 2: Select the action, activities, and communication tools		
Activities & Formats	List the methods and formats you'll use to deliver the message/answer the question.	→ Interactive Lectures → Demonstrations → Hands-on Practice, e.g. First aid → Role Play → Quizzes and Assessments
Number of people	Depending on the selected format and the goal, invite the required number of people.	10 to 20 This size is manageable for effective interaction, hands-on practice, and personalized guidance, while still allowing diverse perspectives and peer learning. Larger groups can work too but usually require breaking into smaller teams or stations to maintain engagement and safety.

5-Step planning template (cont.)

Subject	Action	General Examples
Step 3: Planning		
Materials Needed	List all resources required. What props would make the training more enganging?	→ OHS-Training, e.g. PPE, First Aid kit → Posters → Catering
Moderation	Who will moderate the workshop? Do you need an external expert?	Trained facilitator
Guest	Do you need external experts?	→ Expert speaker(s). → First aid trainer.
Timeline	Develop a clear schedule from planning to follow-up. Develop a feasible agenda: breaks are important! Conclusions are important!	
Budget	Estimate the costs and potential sources of funding or in-kind support.	→ External Trainer → Printing → Materials, e.g. PPE, First Aid Kits → Catering
Venue	Select a suitable venue that can accommodate the number of people and planned activities, and is within your budget.	The Awareness Centre for groups up to 30 people. The Rajbandh Training facility for waste workers at the landfill.
Step 4: Implementation		
Step 5: Follow up		
Monitoring and evaluation	How will you measure the workshop's success?	→ Feedback session → Survey → Test
Follow-up	Plan how to build on the results of the workshop.	Follow-up training or different training modules.

4 SCIP PLASTICS EXAMPLES

Starting with awareness-raising can be daunting: where and how do you begin? This part of the toolbox highlights selected events from the SCIP Plastics project, illustrating tried-and-true formats that can be adopted, adjusted, or expanded in the future, or that might serve as inspiration for new activities. Based on the methods presented in the previous section, the examples comprise workshops, training, the AWC conference booth, as well as the monthly open days.

Waste sampling at Rajbandh Landfill. (Senta Berner, 2024)

Waste Separation Workshop
(Heide Kerber, 2023)

Constellation Analysis Workshop
(Md. Mobashar Hossain, 2024)

Constellation Analysis Workshop
(Md. Mobashar Hossain, 2024)

Shaping tomorrow: Constellation Analysis for sustainable plastic waste management in Khulna

Goal	Visualising interactions for strategic improvement; By the end of the 1-day constellation analysis workshop, at least 80% of participants will be able to identify and visually map the key stakeholders, relationships, and challenges in the local waste management system. Starting point to develop desirable future visions, including options for reconfiguration of the current system.
Target Audience	Officials in waste management, e.g. KCC higher officials; experts in the field of waste management; certain degree of knowledge is necessary.
Key Message or Key Question	Interplay of different elements (actors, technical elements, natural elements and symbolic elements). What are critical leverage points that hinder the flawless functioning of the waste management system?
Activities & Formats	Themed Café (World Café) focused on specific aspects: formal–informal sector integration, governance and coordination, public awareness, operational efficiency, and infrastructure. Since the focus went beyond the current situation to also explore the future, the workshop included engaging in participatory scenario development.
Number of people	18 participants divided into smaller groups of 4 to 5 people each
Materials Needed	→ Flipchart or brown paper → Sticky notes → Pencil
Moderation	AWC staff, researcher
Guest	No
Timeline	Full day see agenda below
Budget (as of 2024)	→ First aid trainer fee → Audio/Video equipment rental → Promotional items / PPE handout → Catering
Venue	AWC
Monitoring and evaluation	None foreseen
Follow-up	Documentation, expert interviews, action plan

Workshop agenda	
8:45	Arrival
9:00	Welcome
9:10	Purpose of the workshop
9:20	Introduction to constellation analysis
9:35	Presentation of overarching problems and their sub-constellations
World café morning session "Status Quo" Working on status quo sub-constellations (focus: hindering factors)	
9:50	Division of working groups and explanation of the procedure and task
10:00	Tea break
10:10	2 World Café rounds, each 35 minutes
11:35	Tea break
11:45	2 World Café rounds, each 30 minutes
12:45	Lunch break
World café afternoon session "Sustainable Future" Working on sustainable sub-constellations (focus: facilitating factors)	
13:45	Division of working groups and explanation of the procedure and task
13:55	2 World Café rounds, each 30 minutes
15:00	Tea break
15:10	2 World Café rounds, each 30 minutes
16:10	Tea break
16:20	Presentation of the results
16:30	Rating of central issues (sub-constellations)
16:40	Next steps and feedback round
16:45	Closing remarks
16:50	End of workshop

Waste separation workshop - game

Goal	To educate participants about different types of waste, identify challenges in waste sorting, and encourage proper sorting habits, in combination with handing out bins for waste separation.
Target Audience	Students and youth
Key Message or Key Question	Waste separation sounds simple - but it isn't. Many different aspects must be taken into account and carefully coordinated. There are many different ways to separate waste, and people often have individual associations or spontaneous ideas about what belongs together.
Activities & Formats	Cut-out pictures of waste and waste bins in different colours. Group work.
Number of people	Class size; Minimum 9 people to create 3 groups of 3.
Materials Needed	→ Images of various types of biodegradable, non-biodegradable and hazardous waste, including plastic, paper, glass, and metal items (e.g., water bottles, newspapers, jars, cans). → Images of three bins (red, green, and yellow) can be adjusted to match standard colours. → A3 size paper and paper glue.
Moderation	AWC staff
Guest	No
Timeline	Prep-meeting with school teachers. 2-hour programme.
Budget (as of 2024)	→ Printing and materials → Media production → Promotional items → Catering
Venue	AWC or at the schools
Monitoring and evaluation	How do you measure the workshop's success?
Follow-up	Kick off a waste separation challenge. But only if it fits the existing infrastructure or is part of larger campaigns. If the waste ultimately ends up together in the landfill, it must be clearly communicated in advance that it is a test phase.

Tips

- Ensure that the waste items are clearly labelled or have visual cues to help participants identify them correctly.
- Provide clear instructions and rules before starting the game.
- Make sure to prepare the sorted items in advance so that you can demonstrate the correct way of sorting at the end of the game.
- Encourage teamwork and sportsmanship among participants.

Instructions

1. Divide participants into teams of equal size.
2. Discuss with participants about waste sorting practices and decide together which type of materials should be put in each container.
3. Allow a required amount of time to separate and organize the waste materials.
4. The team that correctly sorts all waste items the fastest wins the game.

Constellation Analysis (Md. Mobashar Hossain, 2024)

Waste worker safety:
A practical manual on occupational health and safety

Title	Waste Worker Safety: A Practical Manual on Occupational Health and Safety
Goal	**Specific:** Deliver a basic, culturally appropriate OHS training on PPE use and first aid to waste workers in Khulna/ at Rajbandh. **Measurable:** At least 70% of participants demonstrate correct PPE use and understand key first aid steps, assessed through simple practical exercises and verbal questions immediately after training. **Achievable:** Use visual aids, demonstrations, and hands-on practice tailored to low literacy levels and language barriers. **Relevant:** Improving PPE usage and first aid knowledge will directly reduce health risks and injuries among waste workers who currently lack formal safety training. Time-bound: Conduct the training and assessment within 3 weeks
Target Audience	Informal waste workers and KCC waste workers
Key Message or Key Question	Always use personal protective equipment (PPE); Always wear gloves, masks, and sturdy shoes to protect yourself from dangerous waste and germs.
Activities & Formats	Interactive presentations that actively engage participants with questions, along with hands-on exercises such as testing PPE and practising basic first aid skills.
Number of people	Maximum 30 people to allow for practical instructions.
Materials Needed	→ PPT presentation → Projector (electricity) → Projector screen → PPE demonstration materials → First aid demonstration materials
Moderation	AWC staff
Guest	First aid trainer
Timeline	→ Approval from KCC to invite waste workers. → Half-day training and first aid course - choose a time that does not conflict with participant's work schedule. → PPE handout. → Follow-up survey to gauge the useage of PPE
Budget (as of 2024)	→ First aid trainer fee → Audio/Video equipment rental → Promotional items / PPE handout → Catering
Venue	Consider the trainees' comfort when selecting a training location. It should be close to their workstations if possible. If not, provide transportation facilities for them.
Monitoring and evaluation	Feedback from surveys (see also Materials section, p. 45)
Follow-up	How to build on the results of the workshop?

Agenda for half-day event (4.5 hours)			
Variation 1: Splitting agenda into PPE training and First Aid training and conduct training over two days.			**Variation 2:** Start earlier at around 1 pm and provide lunch.
Time	**Duration (minutes)**	**Topic**	**Content/ Comments**
14:00	15	Introduction	Warm welcoming Aim of the meeting, agenda Moderators/ Trainers introduce themselves Agenda with symbols to help non-readers or people with low literacy
14:15	25	Introductory round/ Ice-breaking	Interactive format(s): Name, waste type, years of working (others), a short story on working experience (self) (calculate ca. 1 minute per participant)
14:40	30	Training content: Overview	→ Understanding Different Types of Waste → focus on the specific waste handled or recycled in the workplace, particularly hazardous waste), → Risks related to waste handling/ recycling, → Presentation with pictures.
15:10	30	Training content: Safe Handling Procedures I	Ask them to describe how waste is currently managed – what aspects are given attention and which are overlooked. Presenting good practices.
15:40	15-20	Break	
16:00	35	Training content: Safe Handling Procedures II	→ Present PPE → Interactive formats to test PPE → Use, care, or maintenance of PPE
16:35	20	Training content: Safe Handling Procedures III	Instruction about how to safely collect and store waste
16:55	10-15	Break	
17:10	25	Training content: First Aid I	Brief introduction to first aid: What it is and why it matters. Understand your role – responsibilities and limitations as a first aider. In case of injury – what to do if you or someone else gets injured. Emergency situations – steps to take and how to respond effectively.
17:35	35	Training content: First Aid II (Practical Training)	Interactive
18:10	15	Feedback	
18:35	5	Closing	
		PPE distribution	

First aid training in the Rajbandh Training and Sanitation Centre
(Sheikh Enjamamul Haque, 2024)

PPE Handout at Rajbandh training center
(Florian Wehking, 2025)

Sorting instructions and on-site OHS training at Newsprint In-house STS, Khalispur (Md. Mobashar Hossain, 2024)

Open door days in the Awareness Centre

Goal	→ To introduce with the activities of the Plastics project and the Awareness Centre. → To share SCIP Plastics project's research result → To increase collaboration among different stakeholders → To create awareness on Solid Waste Management, especially Plastic Waste → To encourage an open and free exchange of visions and ideas for better environmental management of Khulna City.
Target Audience	Young volunteers from organizations like CLEAN UP Khulna, TETRA, and 3 ZERO Club for Environment and Climate Change who are actively working for the environmental betterment of Khulna city.
Key Message or Key Question	The waste management scenario in Khulna City. (eg., Solid Waste Management capacity and lacking, plastic waste generation rate, impact of plastic pollution, importance of community participation in waste management)
Activities & Formats	→ PowerPoint presentation → Poster presentation → Display (communication materials, research papers, jute products) → Quizzes
Number of people	35
Materials Used	→ PPT → Posters → Communication materials (booklets, stickers, leaflets) → Jute Products → Gift items → Projector and sound system
Moderation	AWC Team
Guest	Professor Quazi Hamidul Bari (CE, KUET) Rezbina Khanom (Architect, KCC) Ferdous Hussain (Asst. Town Planner)
Timeline	1st July, 2025 (10 AM to 4 PM)
Budget (as of 2025)	5,350/- BDT (Includes printing materials, gift items, snacks, logistics)
Venue	AWC Centre
Monitoring and evaluation	Instant feedback from the participants (Verbal and Sticky Notes)
Follow-up	A clean-up campaign will be held as a follow up event of this program.

School classes joining the 2nd Open Door Day in July 2024 (Md. Mobashar Hossain, 2024)

Open Door Day feedback board (left) (Md. Mobashar Hossain, 2024)

Quiz session at Open door Day (right) (Md. Mobashar Hossain, 2024)

4th Open Door Day at the KCC AWC, May 2025 (Md. Mobashar Hossain, 2025)

Green shift campaign on KUET campus

Meeting with school teachers to discuss campaigns (Md. Mobashar Hossain, 2023)

Awareness Centre stall at Health and Wellness Fair in Khulna (left)

4th Open Door Day (right) (Sheikh Enjamamul Haque, 2025)

Impressions from the booth at the MariNEX Conference at Khulna University

Stall setup (left) (Md. Sheikh Shadi Razu, 2025).

Participants visiting the stall (right) (Md. Sheikh Shadi Razu, 2025)

Dart game for visitor engagement (Sheikh Enjamamul Haque, 2025).

Table display at the AWC booth (Sheikh Enjamamul Haque, 2025).

5 MATERIALS

This section contains templates and other materials which can be further adjusted or used directly to plan and carry out the next awareness-raising activity. This includes the 5-finger feedback and picture evaluation spider diagram evaluation technique, which were already introduced in Chapter 3.

Role play game at the KUET Knowledge Transfer Hub (Senta Berner, 2024).

Invitation checklist

The various stakeholder groups related to the AWC require different invitation approaches for effective communication. The table below shows the AWC invitation checklist.

No	Stakeholder Group	Invitation Approach (3 weeks before, at least)	Reminder (1 week before)	Comments
01	Ward Councilors	Formal invitation letter (should be delivered in person)	Phone Call	
02	KCC Officials	Formal invitation letter (should be delivered both in person and via E-mail)	N/A	
03	School Teachers	Formal invitation letter (should be delivered to the Principal/ Head Teacher both in person or via E-mail)	N/A	
04	School Students	Formal invitation letter (should be delivered to the Principal/ Head Teacher both in person or via E-mail)	N/A	
05	University Students	Formal invitation letter via E-mail / Phone Call	N/A	
06	NGO & CBO Representatives	Formal invitation letter (should be delivered in person or via E-mail)	Phone Call	
07	Ward Supervisors	Phone Calls by the AWC team or Conservancy Department of KCC	N/A	
08	Waste Collectors	In-person verbal Invitation + Contacting Landfill Supervisor	N/A	
09	Nonacademic Campus Staff	In-person verbal Invitation + Phone Call	N/A	
10	Recycling Shop Owners	Formal invitation letter (should be delivered in person)	N/A	

*** Make sure to remind over the phone any target group one/two days before the program

Blank planning template

Step 1: Establish overall purpose, objectives, and outcomes
Title
Goal
Target Audience
Key Message or Key Question
Step 2: Select the action, activities, and communication tools
Activities & Formats
Number of people
Step 3: Planning
Materials Needed
Moderation
Guest
Timeline
Budget
Venue
Step 4: Implementation
Step 5: Follow up
Monitoring and evaluation
Follow-up

Exemplary follow-up questions after an OHS training

1. What is the most important thing you learned during the training?
   → ***Open question!***

2. Since the training, how often do you use personal protective equipment (PPE) while working?
   → ***Always / Often / Sometimes / Rarely / Never***

3. Could you relate to the examples included in the training?
   → ***Yes/No***

4. Was the trainer able to answer all your questions and concerns?
   → ***Yes/No; if No: what questions are still open?***

5. Was the information about first aid procedures easy to understand?
   → ***Yes/No***

6. Did the trainer provide enough practical examples and demonstrations during the training?
   → ***Yes/No; if No: what would be needed in a next training?***

7. Since the training, are you more confident in giving first aid for minor injuries?
   → ***Much more confident / Somewhat more confident / No change / Less confident***

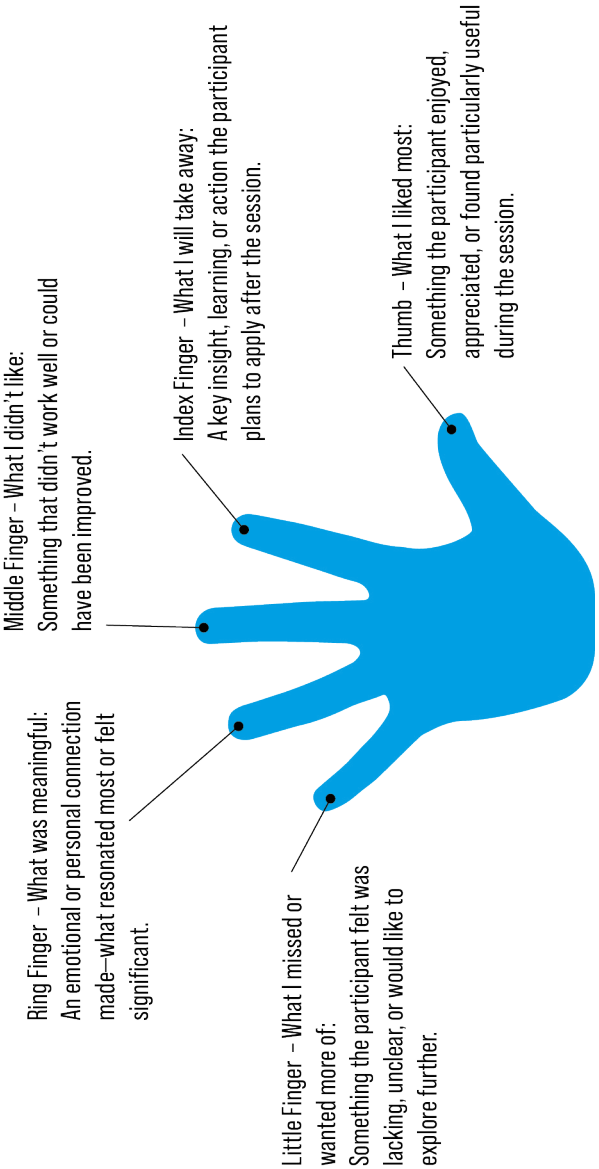
8. What is the most important safety rule you learned from the training?
   → ***PPE use / Safe lifting techniques / Handling hazardous waste / First aid steps / Reporting injuries / Other (please specify)***

9. Have you changed the way you work to reduce risks and avoid injuries after attending the training?
   → ***Yes, a lot / Yes, a little / No change / I don't know. What do you now do differently?***

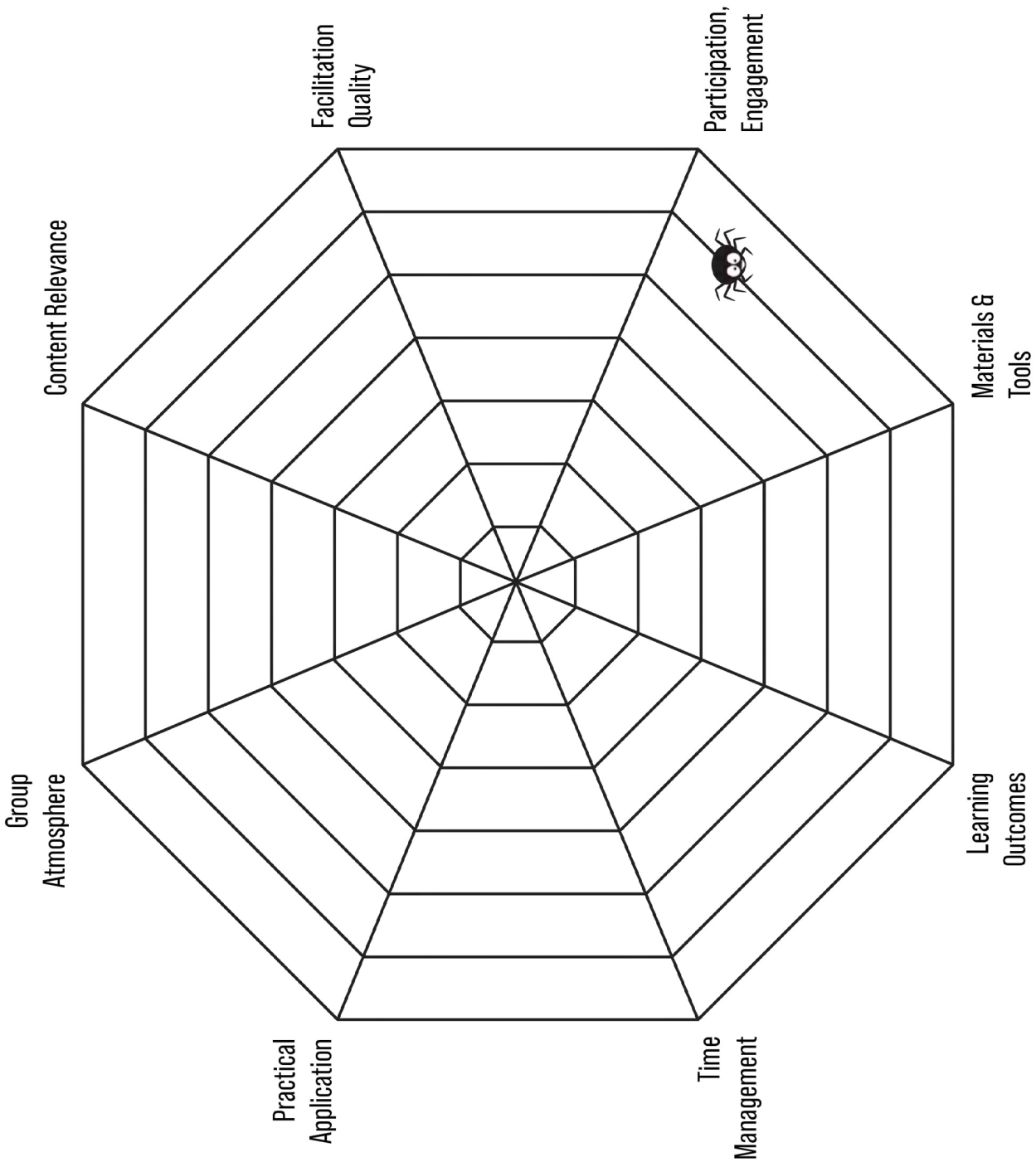
10. What key first aid action will you remember and use if someone is hurt while working?
    → ***Cleaning wounds / Applying pressure to stop bleeding / Calling for help / Treating burns / Other (please specify).***

11. Would you recommend this training to other informal waste workers?
    → ***Yes / No; in both cases: why?***

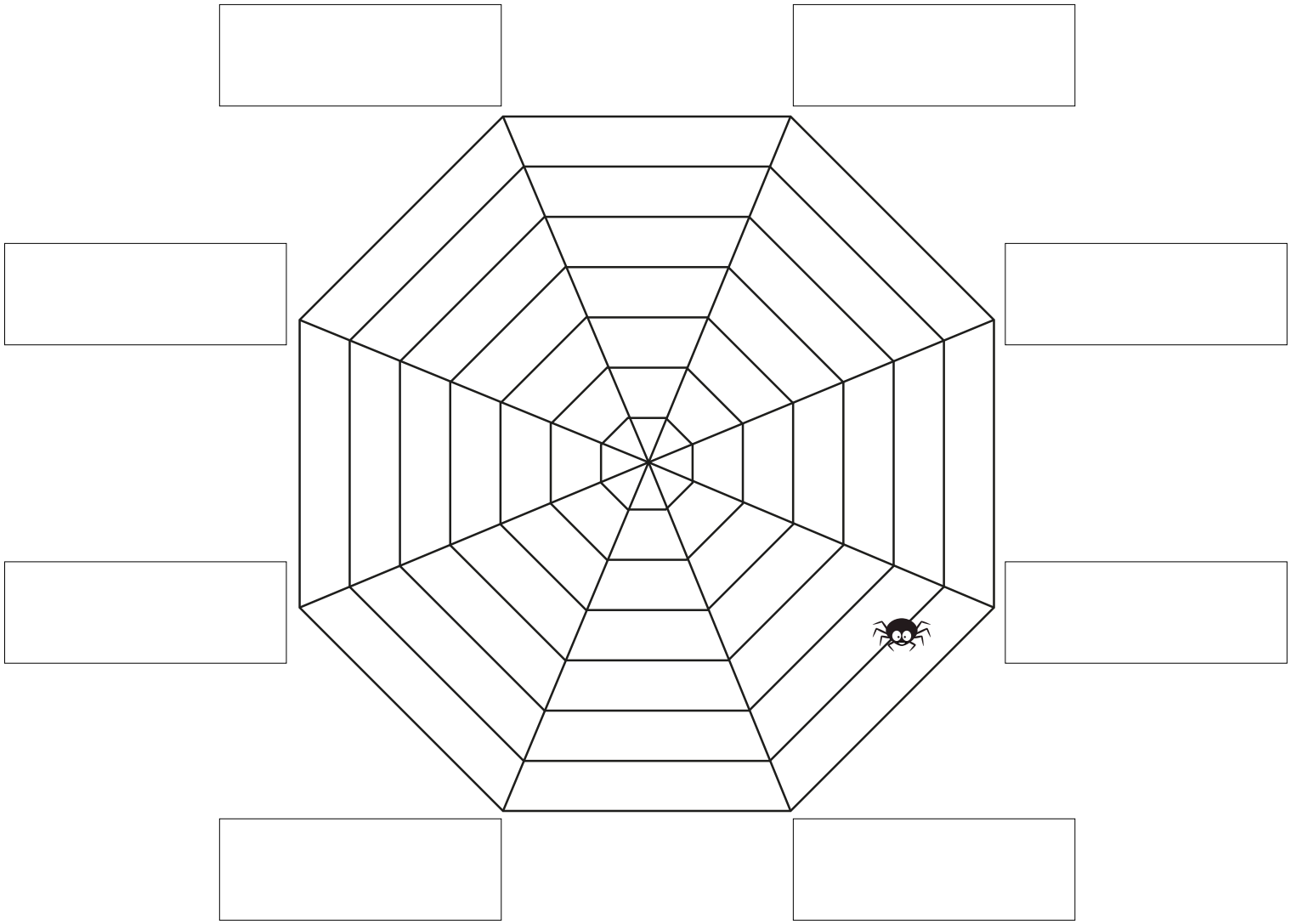
5-Finger feedback



Evaluation spider (Workshop Feedback)



WORKSHOP NAME:

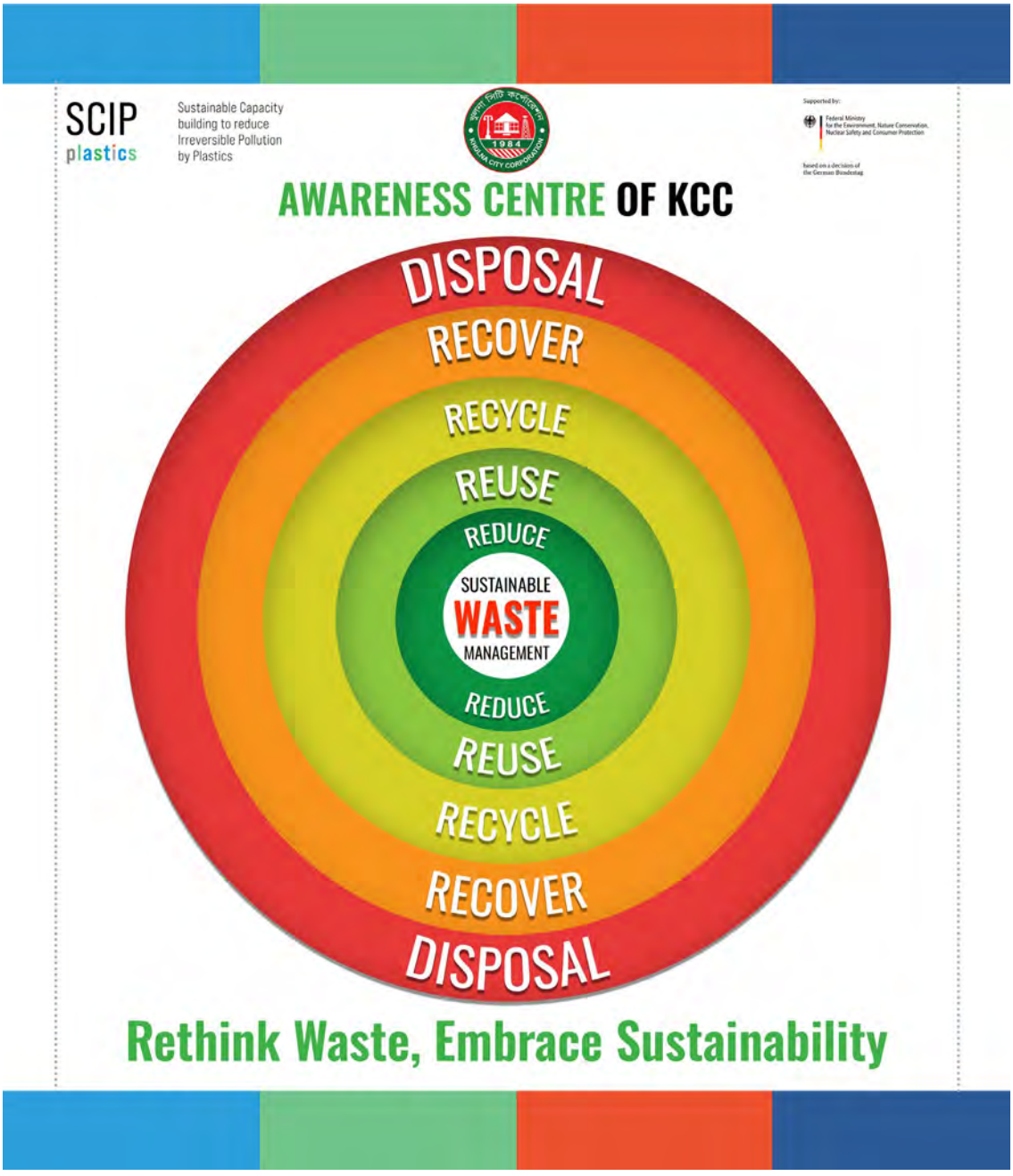


Waste separation game

Illustrations

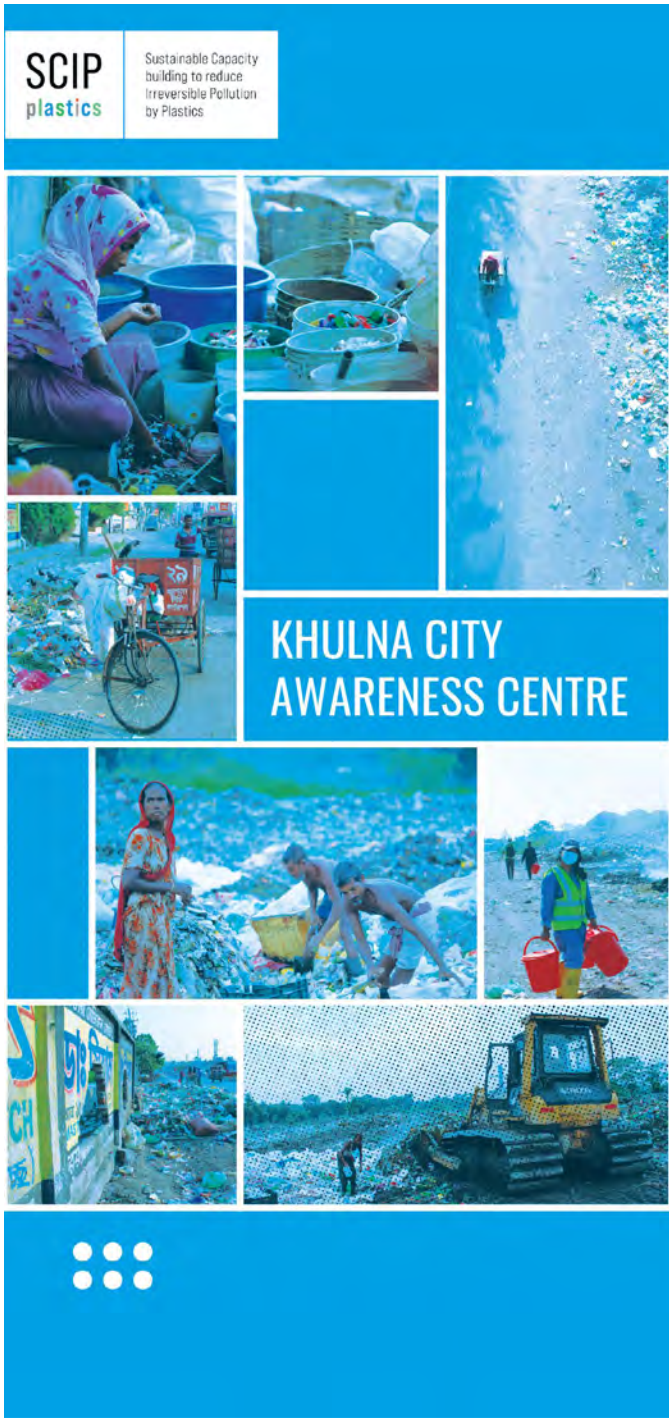
Occupational Health & Safety signs

Dart game for booth



(designed by Anik Sarkar, 2024)

Flyer and other information material



Link to AWC Flyer
https://www.scip-plastics.com/wp-content/uploads/2025/12/250107_AWC-Flyer_A4.pdf

Other helpful resources can be downloaded from the Media section of the SCIP Plastics project website.

6 SCIP PLASTICS BRIEFS – A FACT SHEET SERIES

Presented as fact sheets, this part of the toolbox provides general information on waste management, with detailed facts and figures on the situation in Khulna City. The underlying data was generated in the SCIP Plastics project from 2022 to 2025. The section starts with an overview of KCC's waste management in "Our Waste: From door to disposal", followed by key features and central locations in Khulna City, and concludes by showcasing various interventions and improvements carried out in the project.

The provided information ensures that awareness-raising activities are grounded in scientific research. Furthermore, the fact sheets can be used to gain a first overview of relevant topics or develop activity-specific information material.

Additional helpful resources are available in the media section of the SCIP Plastics website, including the "Guide to municipal plastic waste management in Bangladesh"[1] and the "360° Virtual Tour – Exploring plastic waste management in Bangladesh!" at

www.scip-plastics.com/media/

[1] Kraft, E., Kerber, H., Islam, Md. R., Zuthi, M. F. R., & Ul Jabbar, A. (Eds.). (2024). Guide to Municipal Plastic Waste Management in Bangladesh. November 2024. Weimar, Germany: SCIP Plastics Project. Available at: www.scip-plastics.com. License: Creative Commons Attribution CC BY 4.0

Meeting with KCC officials in AWC (Florian Wehking, 2023)

Our Waste: From door to disposal

Municipal Solid Waste (MSW)

Composition and Sources

The main fraction of municipal waste is generated by households. Apart from this, waste from commercial establishments, institutions and street cleaning also contribute to MSW.

Municipal waste comprises a biodegradable (organic) fraction from food and kitchen waste, other "green waste" like garden trimmings, and a less or non-biodegradable fraction, including plastics, metals, paper, cardboard, glass, and various packaging materials. MSW can also contain hazardous materials that pose an immediate risk to environmental and human health, such as sanitary products, electronic waste, light bulbs, batteries, and combustible or biocidal materials. In Khulna, MSW is made up of approximately 80% organic and 20% non-organic materials.

Excluded Waste Streams

Materials or waste streams that are not considered municipal solid waste include industrial waste and by-products, hazardous and medical waste, construction and demolition debris, radioactive waste, liquid waste, and other special waste types that require separate management strategies and facilities due to their unique characteristics or regulatory requirements.

80%
biodegredable

20%
non-biodegredable

waste in Khulna

Waste Generation in Khulna City

On average, residents in Khulna city produce 450g MSW per person. However, not every person generates the same amount of waste with the same waste composition. Income strongly influences generation rates and composition: the higher the income, the higher the waste generation rate; and the lower the income, the lower the plastic fraction. If you live in a high-income household in KCC, you generate around 350g MSW per day, but if you live in a low-income household, you only generate 680g MSW.

Average
450g MSW
per person
per day

high-income household
680g MSW
per person
per day

low-income household
350g MSW
per person
per day

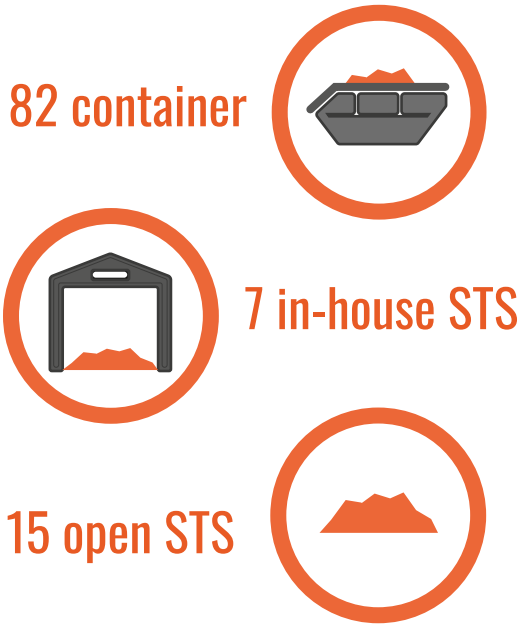
Waste Disposal and Recycling Practices

While some waste materials, such as banana peels, have little market value, others remain tradable. Residents can sell or barter materials like PET bottles to ferriwallas or vangari shops, where they are directed to recycling shops. Additionally, informal waste pickers recover valuable materials from waste dumps and sell them to recycling businesses.

For non-recyclable waste, disposal options include door-to-door waste collection, community bins, or municipal transfer stations. Ideally, all waste should be transported to the nearest secondary transfer station for proper management.

Waste Collection and Transfer System

Tradable materials are often collected close to the point of generation. Their recovery is mostly in the hand of the informal sector. Municipal street sweepers and van drivers collect street sweepings and transport them to transfer stations. As of 2024, Khulna City Corporation (KCC) operates seven indoor transfer stations, maintains 82 waste containers across the city, and has designated 15 open roadside locations for secondary transfer. From these points, municipal trucks transport waste to the Rajbandh final disposal site. KCC's waste collection fleet consists of 28 vehicles.



Changes in KCC waste collection – compactor trucks and wheelie bins

The KCC conservancy department has procured five compactor trucks and deployed blue wheelie bins in the city centre as litter bins.

For emptying, the wheelie bins are lifted by a hydraulic mechanism to ensure a convenient loading process. The collected waste is compacted inside the truck, reducing the waste volume and increasing loading efficiency. This process is ideal for low-and medium-density waste rich in plastics and paper.

KCC compactor trucks and bins (Ankon Baral and Swadhin Das, 2023)

Waste Disposal

All waste from KCC which does not find its way into the recycling sector is transferred to the Rajbandh final disposal site. Rajbandh is an open dump site operated by the KCC Conservancy Department and is currently the only waste disposal site for Khulna city. It lies west of the city along the old Satkhira Road.

The site supervisor directs the incoming trucks, which dump their waste in the active waste disposal zone.

Waste pickers sort through the fresh waste and remove valuable materials, such as plastics, metals or coconut shells. A bulldozer spreads and compacts the waste. No other material recovery or treatment takes place.

In addition to the Rajbandh site, two other waste treatment and disposal locations are currently under construction: the Solua site in the north of the city and the 3-R site in Mathavangha, in the south of the city.

Solou is designed as a sanitary landfill with a material recovery facility, composting and a leachate treatment plant. At the 3-R site, plastic waste will be converted into fuel by pyrolysis, and biodegradable waste will be composted.

Drone image of Rajbandh (Saptarshi Mondal, 2025)

Challenges in KCC waste management

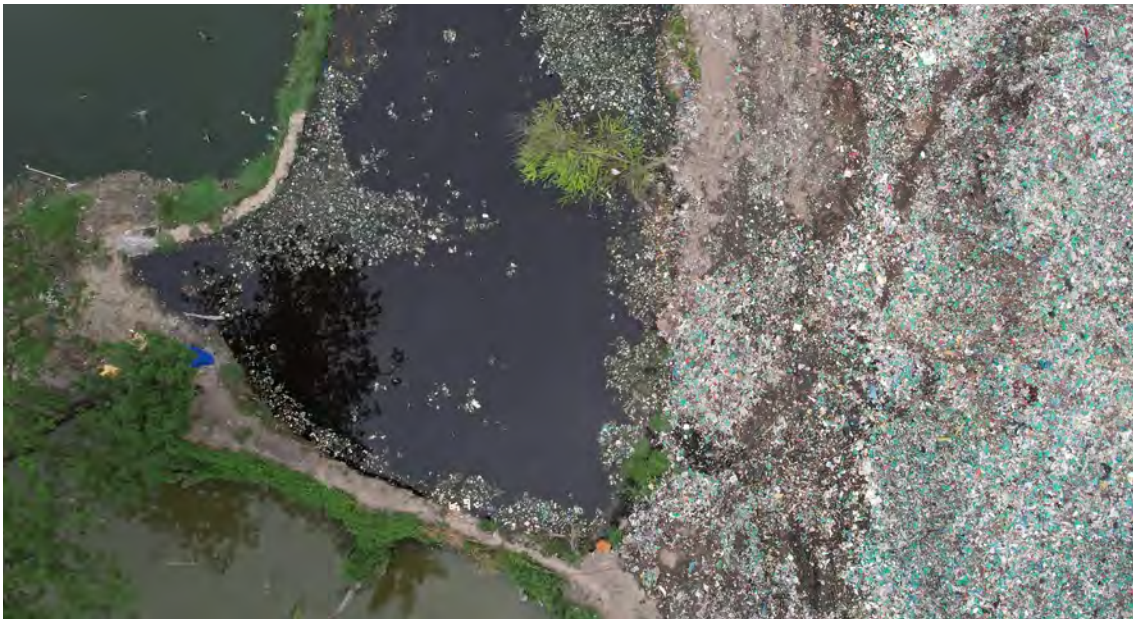
Waste management is a complex infrastructure system with many stakeholders involved. The main challenges in the KCC waste collection are:

- **Insufficient collection coverage,** resulting in illegal dumping, littering or open burning.
- **Inadequate transfer infrastructure:** open transfer stations from where waste spreads into the environment, clogs drains, impedes traffic and poses an environmental and health risk.
- **Lack of dedicated waste trucks:** 23 of the 28 available trucks are multi-purpose trucks and not solely dedicated to waste collection. For example, most of the multi-purpose trucks have low side panels. This can cause inefficiencies and losses during waste transport.

At the **Rajbandh final disposal site,** containment is the main concern:

- The **absence of embankments or fences** at the final disposal site leads to environmental risks.
- Strong **winds and heavy rainfall** can cause plastic waste to disperse into surrounding areas.
- The uncovered site receives large amounts of wet organic waste, generating significant **leachate that mixes with rainwater** and leaks into the environment.

23 / 28



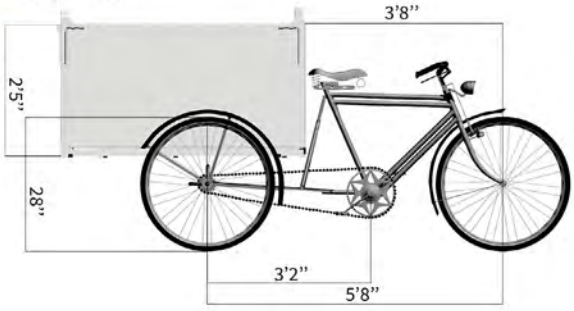
Drone image of Rajbandh, south-western corner (Saptarshi Mondal, 2025)

Rickshaw vans

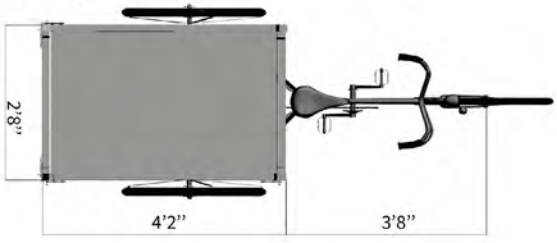
Rickshaw vans in KCC

Rickshaw vans are used for primary waste collection, i.e. door-to-door waste collection or street cleaning.
Van drivers cover around 10 km per day.
A loaded van weighs on average 166 kg.

→ side view



→ top view



Secondary Transfer Stations in Khulna City

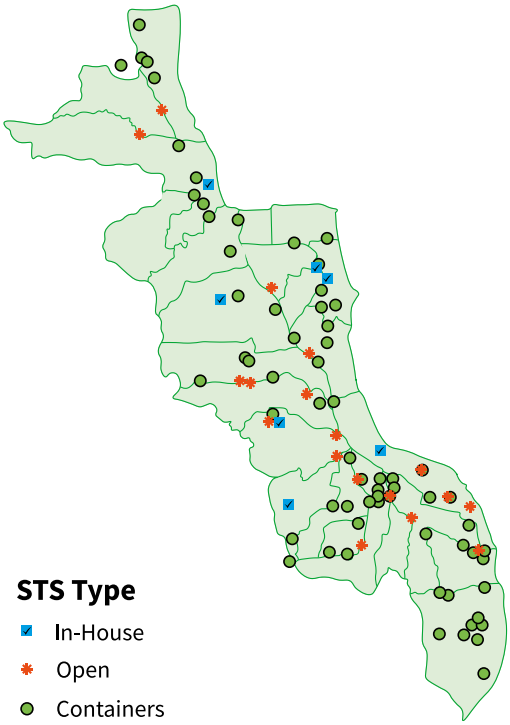
Definition

Secondary Transfer Stations (STS), also known as secondary transfer points or secondary disposal points, receive waste from primary waste collection and temporarily store waste until it is transferred to large collection vehicles and taken to the final disposal site or treatment facility.

Types of Transfer Stations in KCC

- 7 In-house transfer stations: enclosed and roofed.
- 82 containers: skips and closed waste containers
- 15 open transfer points: some with minimal containment, like walls or floor plates, but generally without.

STS locations in Khulna



Typical skip container for secondary waste transfer (Tariqul Islam, 2022)

Truck terminal In-house STS (Swadhin Das, 2023)

Azizer Moor STS (Swadhin Das, 2023)

Open transfer stations in KCC

Five open transfer points are open bunker systems with concrete walls and floors: Kalibari, Goakhali, Nurnagor besides New Market, and KDA Mosjid New Market.

Twelve open transfer points are not engineered. They often lack clear demarcation, resulting in waste piles that spread over long stretches on the side of the road.

Waste from these transfer points spreads onto the street, leaks into drains, and interferes with traffic and urban drainage.

Challenges with transfer stations

Each type of transfer station offers different advantages and disadvantages. Although open transfer stations contribute to environmental pollution, waste collectors benefit from their easy accessibility.

Containers can reduce the spreading of waste, but waste transfer from rickshaw vans to containers is laborious.

	Open STS	In-house STS	Container
Waste off-loading	↑ Dump and go (quick).	→ Ease of access depends on ramp slope. ↑ Generally, dump and go.	↓ Manual transfer fro ground to container: inconvenient, often requires lifting above shoulder height.
Waste loading	↑ Front-wheel loader.	↑ Front-wheel loader. → Limited manoeuvering.	↑ Pick up and go. ↓ Incorrectly deposited waste needs to be loaded first.
Capacity	↑ “Unlimited”	→ Limited, but space is often underutilized.	↓ Very limited.
Environmental contamination	↓ No or limited containment. ↓ Exposed to weather.	↑ Maximum containment.	↓ Exposed to weather. → Containment quality depending on container type.
Traffic impact	↓ Can cause congesttion during loading and due to waste spreading into traffic.	↑ No impact.	→ Possible impact during pick-up..
Informal sector access	↑ “Unlimited”	→ STS can be locked and access can be denied.	→ Accessibility depends on location.

↑ Advantages
↓ Disadvantages
→ Possible risk: case dependent.

Azizer Moor STS (Noor Alam, 2023)

Rajbandh final disposal site

Site key facts

Authority	KCC Conservancy Dept.	**Available infrastructure**	Access road (unpaved), workshop, training and sanitation facility, fencing
Active since	~ 2010	**Staff**	2 supervisors, 4 guards
Area	~ 80,000 m^2	**Waste pickers**	~20 people
Waste volume	~ 127,000 m^3	**Closest river**	6.3 km (Rupsha)
Daily waste intake	~ 300 t/day	**Closest canal**	330 m

Drone image of Rajbandh (Saptarshi Mondal, 2025)

Map Legend

1. Training and sanitation facility
2. Workshop and borehole
3. Weighing station
4. Embankment phase 1: under construction
5. Planned embankment (Phase 1)
6. Planned embankment (Phase 2)
7. Existing walls
8. Main drainage canal
9. Pond (acquired in 2024) to complement operation
10. Access road
11. Interior road

Rajbandh is an open dump site with limited operational activities and control measures. Waste is spread and compacted, but not covered.

Around 20 – 25 informal waste workers sort through the incoming waste and recover tradable materials.

Rajbandh central waste body (left) (Senta Berner, 2023)

Waste pickers at Rajbandh (right) (Senta Berner, 2022)

A temporary truck scale allows the correct measurement of incoming waste quantities at the weighing station.

The sanitation and training centre offers washing and ablution facilities to informal workers and KCC staff, and it provides a room for training, such as on occupational health and safety.

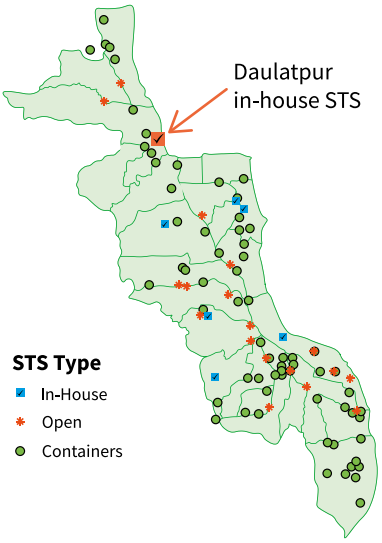
Truck scale (left) (Saptarshi Mondal, 2025)

Training and sanitation centre (right) (Florian Wehking, 2025)

Daulatpur Railway Station in-house STS

Background

Daulatpur Railway Station STS (referred to as Daulatpur STS) contains a ramp system with containers for waste storage. A survey showed that the ramp is excessively steep, making it impossible for a single person to push a loaded van up to the platform. Additional assistance is required to move the van. The STS has toilets and access to water, but some legal complications have imposed restrictions on their use.



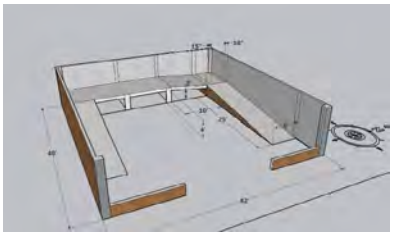
Objective

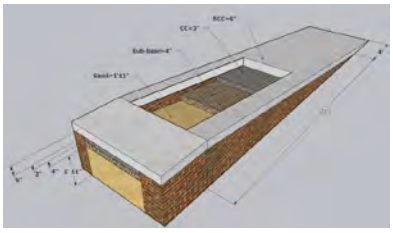
Remodel the Daulatpur STS ramp system to facilitate easier off-loading and increase disposal rates.

Ramp before remodelling
(Senta Berner, 2025)

The preferred 1:10 slope was achieved by constructing a ramp around the corner along the inside wall of the building: first, a 25-foot ramp (7.62 m) to a height of 3 feet (0.91 m), followed by a 10-foot (3.05 m) ramp up to the final height of 4 feet (1.22 m). The existing ramp was left as the down-ramp with the added benefit of reducing manoeuvring on the platform.

Ensuring the comfort of van drivers was a key consideration, and the drivers participated in the design process.





Technical drawings
for ramp remodelling
(Ankon Baral, 2023)

Initial situation as SWOT

Strength	Weaknesses
→ Ramp System for fast waste unloading. → Container for waste storage, facilitating clean and organized waste management: the cleanest STS in Khulna due to its container. No waste on the floor. → Availability of toilets and access to water. → Redesigning the ramp to an optimal slope could enhance efficiency.	→ A steep ramp with a slope of 1:6 demands additional manpower for van lifting. → Steep ramp causes operational inefficiency and worker fatigue. → Steep ramp increases the risks of accidents and injuries. → No leachate drainage/ management.
Opportunities	**Threats**
→ Solving the legal issues on toilet use would improve hygiene and working conditions for staff. → Potential to implement segregated waste reception as there is space for additional containers. → Refurbishment of the STS could be used to initiate OHS measures.	→ An increase in waste intake might not be in the interest of the existing van drivers. → Legal complications restrict the use of toilets. → The electricity pole in front of the gate reduces accessibility of STS. → Restricted access to the STS – not open to the public, incl. Informal workers. Residents throw waste in front of STS.

Completed remodelling and feedback

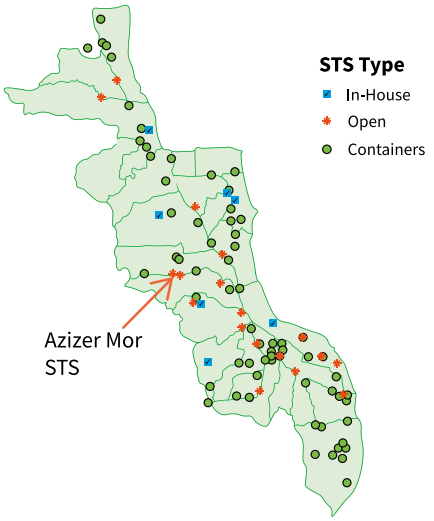
The final remodelling phase was completed in May 2025. The on-ramp improved the working conditions in the STS and reduced off-loading time per rickshaw van. Feedback from the STS supervisor and van drivers led to additional improvements to the freshwater supply and drainage systems, as well as the distribution of PPE to the van drivers.

Remodelled on-ramp (Sourav Saha, 2024)

Azizer Moor open STS

Background

Between 2023 and 2024, the number of open transfer stations in KCC decreased from 18 to 13 as skip containers replaced open transfer points. However, van drivers generally prefer the open STS, which allows easy and fast offloading. Interventions to improve containment at open STS, which require low investment costs and are easily removable, were explored at the Azizer Moor open STS.



Objective

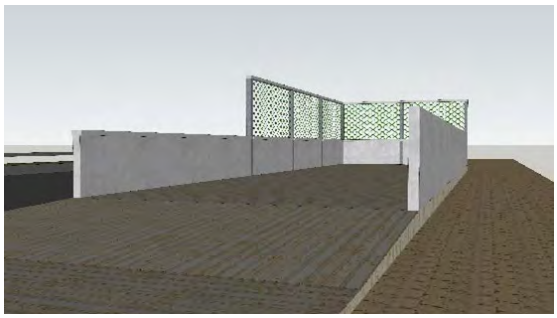
Design a containment system for an open STS as a stop-gap measure while the city-wide waste collection is improved.

Azizer Moor STS
(Senta Berner, 2023)

Initial situation as SWOT

Strength	Weaknesses
→ Large area → Receives waste from ward-14 and 16 → Easily accessible for waste unloading → Containment measures could be achieved at relatively low costs, such as a fence line to protect the water body.	→ No access to water for washing. → Waste loading impedes traffic. → Plastic waste spreads along the road and into the road → No drainage leads to waterlogging during the rainy season, and the plastic is washed out. → The old concrete floor is too small and below the street level. → No cover/roof
Opportunities	**Threats**
→ The land belongs to KCC → Adjacent vacant plot: no immediate neighbours who might oppose STS.	→ Another open STS is within a 300 m radius, and an in-house STS. → Future development along the road might destroy any new construction. → The adjacent vacant plot is owned by a house-building corporation, which might oppose the construction of an STS.

The reconstruction of the Azizer Moor STS aims at improving waste containment: a transformation from open roadside dumping to an enclosed transfer point with a 60 ft x 16 ft reinforced concrete floor, 5-inch wall on three sides, topped with a chainlink fence.



Initial situtation on 08.05.2025 (left) (Noor Alam, 2025)

Technical design by Sourav Saha and Noor Alam (drawing by Noor Alam, 2025)

Construction progress on 06.08.2025 (left) (Noor Alam, 2025)

Completed construction (Sourav Saha, 2025)

Waste separation schemes for Khulna

Green bin, yellow bin, red bin
Why is waste separation a good idea?

Waste separation helps to transform trash into valuable resources: recovering materials becomes much easier when waste is sorted, especially when wet waste is kept separate from dry waste. For example, paper degrades very quickly if it comes in contact with wet materials.

Waste separation also helps divert hazardous materials that could harm humans or the environment, or cause serious accidents in waste treatment facilities.

Where is the waste separated?

The general rule says that waste separation closest to the source increases effectiveness, resulting in cleaner waste fractions.

The optimal scenario is waste separation at the point of generation, i.e., source-separated waste. For municipal solid waste, this means that waste should be separated directly by the residents at the household level.

Alternatively, waste collection services can pick up mixed waste and segregate it in a sorting or elaborate material recovery facility (MRF). However, some materials might degrade during transport and will no longer be recoverable.

Waste separation in Bangladesh

The 2021 Solid Waste Management Rules of Bangladesh state that municipal solid waste should be segregated into three categories:

- Biodegradable waste - Green bin
- Non-biodegradable waste – Yellow bin
- Hazardous waste – Red bin

Currently, informal waste workers are the driving force behind material recovery and segregation of materials along the waste collection chain.

List of hazardous waste

1. List of hazardous waste
2. Sanitary napkin, diapers;
3. Medical waste, such as bandages, gloves, masks, gowns, goggles, face shields, tubing, needles and syringes;
4. Any aerosol cans;
5. Batteries;
6. Bleach and drain cleaning agents;
7. Car batteries, oil filters, automotive products;
8. Chemical cosmetic products;
9. Pesticides, herbicides (weed killers) and their containers;
10. All types of light fixtures;
11. Unused or expired medicines;
12. Paints, oils, lubricants, glues, polishers, thinners and their containers;
13. Gas lighters and refill containers;
14. LPG containers;
15. Styrofoam and soft foam from packaging products;
16. Thermometers and products which contain mercury;
17. Toothpaste, shaving cream, antiseptic and their containers;
18. Any broken electronics.

Testing waste separation schemes

To find out how to implement waste separation in Bangladesh, the SCIP Plastics project tested a waste separation scheme at an in-house waste transfer station (Newsprint STS, Khalispur, KCC) and at household level in the KCC Nirala Ward 24.

Objective

Determine which separation scheme yields cleaner waste fractions with minimal cross-contamination and assess the operational effort required for each scheme.

Separating at the household level in Nirala Ward 24

At the kick-off event in January 2025, 120 dual-chamber plastic bins were distributed to local householders. Residents received information on the campaign's goal and schedule, and were instructed on how to separate waste.

Waste separtion bins with placards (Sourav Saha, 2025)

Survey of participating households in Nirala Ward 24 (Swadhin Das, 2025)

Two data-collection campaigns were conducted in the Nirala Ward 24: one in January 2025 and another from the end of February to the beginning of March 2025. Participating residents provided regular feedback during the campaigns. At the end of the second campaign, a feedback event offered insights into the gained information and provided another opportunity to raise questions and concerns.

To assess the quality of the separated waste streams, non-biodegradable and biodegradable waste samples were analysed for cross-contamination. In the non-biodegradable fraction, all biodegradable materials were declared impurities, whereas in the biodegradable fraction, all non-biodegradables were declared impurities.

Newsprint In-house STS (Senta Berner, 2024)

Throwing sieves (Sourav Saha, 2024)

Training of waste workers and waste separation (Sourav Saha, 2024)

Waste separation in operation (Saptarshi Mondal, 2024)

Rickshaw van weighing (Sourav Saha, 2024)

Separating at the Waste Transfer Station Newsprint, Khalispur

The Newsprint In-house Secondary Transfer Station in Khalispur, Khulna, was initially designed with a rickshaw van lift, tipping floor and container storage space. Since the lift fell into disrepair, the STS now provides a large, mostly unused floor area of ca. 260 sqm. To use the space more efficiently, the SCIP Plastics project implemented a waste separation scheme based on a screening process:

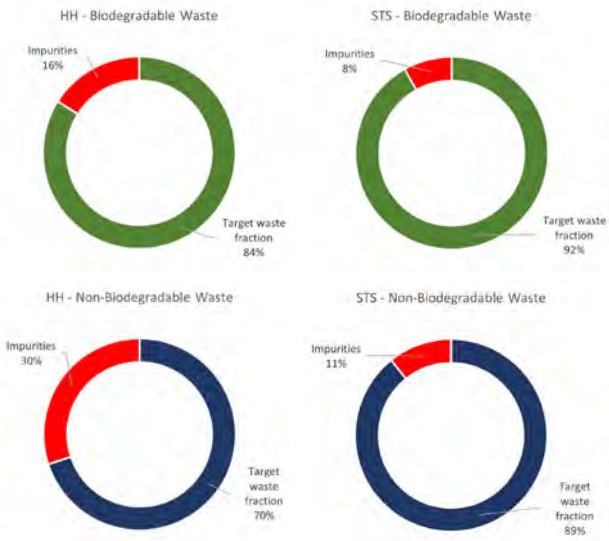
1. Incoming household waste is visually inspected for any large or problematic objects.
2. Waste is screened using sieves with a 4 cm mesh.
3. Particles larger than 4 cm are mostly non-biodegradable materials.
4. Particles smaller than 4 cm are mostly biodegradable materials.
5. The resulting fractions are visually inspected again.
6. Respective impurities are removed and added to the correct fraction or stored separately as hazardous waste.

Four waste workers were employed and received training on sorting and on process-specific occupational health and safety procedures.

Two sampling campaigns were conducted in the Newsprint STS: one in November 2024 and one in March 2025. During each campaign, the waste intake was measured by weighing the load of incoming rickshaw vans. After separation, the weight of each waste stream was determined. Subsamples were collected to analyse impurities of the non-biodegradable and biodegradable fractions.

Comparing Waste Separation Schemes

The waste separation process at the Newsprint STS resulted in higher-quality waste fractions, with only 8% impurities in the biodegradable and 11% impurities in the non-biodegradable waste streams. The household-level source-separation scheme at the Nirala Ward produced a biodegradable waste stream with 16% impurities and a non-biodegradable waste stream with 30% impurities.



Pros and cons of the separation scheme

Household separation	STS separation
↓ Intense and continuous engagement is necessary	↑ Only requires training for workers
↓ Many actors involved, min. 1 person per household	↑ Involved actors are limited to KCC staff and waste collectors.
↑ Very public – high visibility	→ Low public visibility
↓ Little operational control over separation process	↑ Full operational control
↑ No municipal space required	↓ Requires sufficient space. It cannot be implemented everywhere

↑ Advantages
↓ Disadvantages
→ Possible risk: case dependent.

Conclusion

The results of this investigation contradict the general belief that household-level waste separation yields less contaminated material streams. The main reason that this was not achieved is that out of the 85 participating households, an average of 14 households did not separate their waste. In comparison, the separation scheme at the Newsprint STS allowed complete process control and did not rely on a large number of individuals. Based on this, the researchers made the following recommendations:

1. Phased (time) implementation for source-separation: Within the immediate transition between mixed waste collection and separated collection, the resulting waste streams are very likely of poor quality. Higher operational costs in the subsequent processing should be anticipated.

2. Phased (spatial) implementation for source-separation: a city-wide roll-out is unlikely to succeed. A community- or city-block-wise implementation could mitigate logistical and administrative bottlenecks.

3. STS-level separation: separation at an STS is an attractive alternative to source-separation to improve material recovery of non-biodegradable materials. Due to the presence of plastic in the biodegradable fraction, it is questionable if a high-quality compost can be produced. However, the scheme would allow a pre-composting/dewatering of the biodegradable waste and improve landfilling.

Training and Sanitation Centre at Rajbandh

Background

As of 2025, the Rajbandh final dispsoal site is the only operational waste disposal site for Khulna city and receives all waste collected by KCC. The site is an open dump site with limited control and oversight. Currently, it is staffed by a site supervisor, two guards and an operator for heavy machinery. Additionally, around 20 informal waste workers screen the incoming waste for any valuable materials.

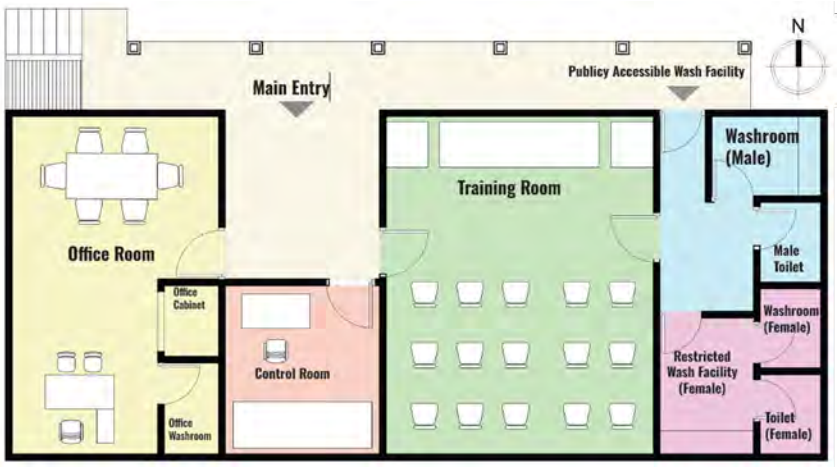
To improve working conditions and oversight at Rajbandh, the KCC conservancy department and the SCIP Plastics project implemented a Training and Sanitation Centre. The construction of the Centre started in June 2024 and was completed in February 2025.

Objectives

1. Improve **sanitation and hygiene** conditions for male and female workers.
2. Offer **resting and waiting areas** to reduce exposure to hazardous environments.
3. Provide a dedicated space for **occupational health and safety training** for informal and formal waste workers.
4. Serve as a **multipurpose space** for awareness, health check-ups, first aid, and other meetings.

Facilities and description

Training Room	A room equipped for holding capacity building and occupational health and safety training sessions for the informal waste worker.
Office Room	Space for site managers, record keeping and documentation, access to procedures, guidelines and other operational protocols.
Sanitation Facilities	Separate male and female toilets and shower space for the informal and formal workers of Rajbandh and handwashing stations.
Control Room	Room for site staff ensuring security and maintenance.
Resting Area	Shaded and ventilated space for workers to rest during work hours.



Location of Training and Sanitation Centre at the entrance of the Rajbandh site

Drone images of the Rajbandh site and the centre (Florian Wehking, 2025)

Waste pickers (Senta Berner, 2025)

PPE distribution event (Florian Wehking, 2025)

Training and sanitation centre - front view (Florian Wehking, 2025)

Weighing station at Rajbandh

Background

Capturing waste quantities at final disposal sites is critical for the successful operation of the site, as well as for monitoring the performance of the waste management system. However, the installation of a weighbridge generally requires a paved access road and thus relatively high investment costs. This is not feasible for the Rajbandh site. Therefore, a temporary weighing station was implemented: a simple concrete platform with ramps and equipped with a mobile truck scale. Naturally, this set-up does not allow the continuous monitoring of waste quantities; rather, it is used for spot checks and as a starting point to collect basic datasets.

Objective

To establish a temporary weighing station to conduct truck monitoring campaigns and collect robust data on collected and disposed waste quantities.

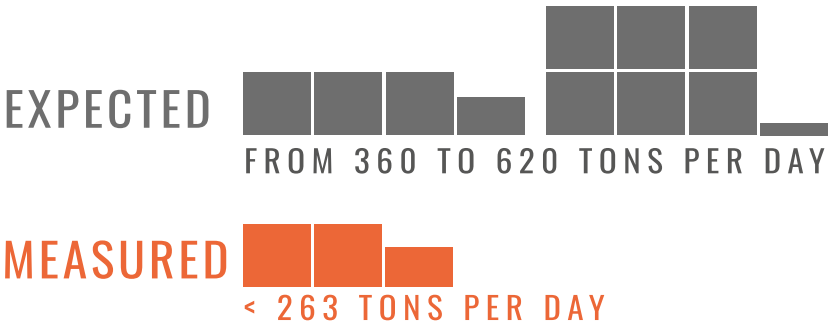
Truck weighing
(Sourav Saha, 2024)

How much waste?

Since the beginning of the SCIP Plastics project in 2022, the big question has been: How much waste arrives at the Rajbandh site?

From a household survey, it was estimated that on average, KCC residents generate around 450 g of waste per day. However, population data differ significantly. The Bangladesh census determined that ca. 720,000 people live in KCC; KCC officials speak of 1.2 million people.

Thus, the researchers anticipate anything between 360 tons per day and 620 tons per day. In June and October 2024, we ran two 3-day monitoring campaigns. The maximum amount of recorded waste was 263 tons.



Why do the numbers differ so much?

The population might be smaller than assumed. Waste collection rates might be low, or illegal dumping might be high. Most probably, it is a combination of all three scenarios. Further monitoring campaigns are necessary to validate these findings.

Initital construction of weighing platform (left) (Senta Berner, 2024)

Reconstruction and improvements of the platform (right) (Saptarshi Mondal, 2024)

The initial construction of the weighing platform started in the beginning of 2024.

After a short testing phase, the platform was reconstructed. It was raised and elongated to protect it from spreading dirt, and for better axle-alignment during weighing. A cut-out for the weighing pads ensured that the pads stay in place .

Truck scale by Dini Argeo with two weighing pads (left) (Noor Alam, 2024)

During operation, the weighing pads are placed in the platform's cut-out. The pads can be adjusted for different axle widths. Then the front and rear axle weights are recorded for each incoming truck. On the way out, the empty truck's weight is measured as well. To determine the waste weight, the empty truck weight is subtracted from the incoming truck weight.

Final truck scale setup in operation (right) (Saptarshi Mondal, 2024)

WASTE MANAGEMENT GLOSSARY

A

aeration[1]: activity to introduce air or oxygen into waste

aerobic biodegradation[1]: biodegradation by reaction with oxygen *EXAMPLE Composting

aftercare[1]: activity to prevent a closed landfill site from producing adverse environmental effects

anaerobic biodegradation[1]: biodegradation without access to free oxygen

B

biodegradable[2]: Capable of being reduced to finer particles (degraded or decomposed) by microbiological organisms.

biogas production[1]: activity to collect combustible gas generated by anaerobic biodegradation of waste

biological treatment[1]: treatment by biological processes

brand owners[2]: Companies that produce branded consumer products and use packaging material for them. These companies also produce several types of plastic products and commodities.

bring collection[1]: collection of waste that the holder has brought to a point for centralised collection. *NOTE This concept is the activity in bring system, which is the more frequently used term.

bring system[1]: system based on sorting at source, where the holder brings sorted waste to a collection point. *NOTE Bring system is mainly used for household waste like glass, paper, wood etc.

C

chemical treatment[1]: treatment by chemical processes

closed composting[1]: composting that takes place in closed environment with protection against climate influence. *NOTE See reactor composting.

closure[1]: activity to formally close a landfill

co-incineration[1]: activity to use waste as regular or additional fuel in a plant whose main purpose is the generation of energy or production of material products. *NOTE Compare also annex A.4, Council Directive 2000/76/EC.

co-disposal[1]: landfilling of hazardous and non-hazardous waste together

collection[1]: gathering, sorting and/or mixing of waste for the purpose of transport. *NOTE See annex A.1, Council Directive 91/156/EEC, Article 1.g.

compacting[1]: mechanical treatment to reduce volume of solid waste. *NOTE Compacting often leads to reduced permeability and increased stability.

composting[1]: treatment under controlled conditions of solid organic waste through aerobic biodegradation and activity of micro-organisms. *NOTE Composting is usually used with the aim to produce soil improvers.

covering[1]: activity to spread material on the top of the masses of waste in a landfill. *NOTE Covering is carried out in order to minimise adverse environmental effects.

D

deep well injection[1]: injection of pumpable discards into wells, salt domes or naturally occurring repositories, etc. *NOTE See annex A.1, Council Directive 91/156/EEC, annex IIA D3.

disposal[1]: any of the operations provided for in annex II, A [91/156/EEC]. *NOTE See annex A.1, Council Directive 91/156/EEC, Article 1.e.

E

encapsulation[1]: treatment to permanently isolate waste in materials having a low permeability. *NOTE When appropriate the waste is shredded before encapsulation.

energy recovery[1]: activity to use combustible waste as a means to generate energy through direct incineration with recovery of heat. *NOTE Compare also annex A.2, Council Directive 94/62/EC.

F

feriwalla[2]: a person who purchases or barters for waste and old materials from different sources by using their own capital or taking loans from the owner of the shop to which they sell the materials. They usually carry a cane basket on their head to carry the load.

final covering[1]: covering in order to create a permanent cover.

G

gasification[1]: activity where combustible gas is produced from non-gaseous waste. *NOTE The gasification can be a biological, chemical or thermal process.

H

holder[1]: producer of the waste or the natural or legal person who is in possession of it. *NOTE See annex A.1, Council Directive 91/156/EEC Article 1.c and annex A.3, Council Directive 1999/31/EC, Article 2.n.

hot spot[2]: a place where plastics leak into the environment (including land, air, water, and marine environment). Actions to address hot spots are considered in terms of interventions and instruments (Boucher et al. 2020). Hot spots for the current study are locations along the waste management value chain where waste accumulates regularly and is not collected and transported to a landfill for proper disposal.

I

incineration[1]: treatment by controlled combustion with full supply of oxygen. *NOTE The Incineration of Waste Directive (2000/76/EC) does not exclude oxidation, pyrolysis and other thermal treatment from the definition of incineration plant.

incineration[1]: treatment by controlled combustion with full supply of oxygen. *NOTE The Incineration of Waste Directive (2000/76/EC) does not exclude oxidation, pyrolysis and other thermal treatment from the definition of incineration plant.

informal sector[2]: extensive economic activity that is usually small-scale, labor-intensive, unregulated, and competitive.

integrated waste management[1]: waste management that includes several coordinated activities.

intermediate covering[1]: covering that is carried out consecutively during the operation of the landfill. *NOTE See 3.22, final covering.

K

kerbside collection[1]: collection of waste that the producer has brought to the kerbside

khal[2]: river tidal channels.

L

landfill[1]: waste disposal site for the deposit of the waste onto or into land (i.e. underground), including:

internal waste disposal sites (i.e. landfill where a producer of waste is carrying out its own waste disposal at the place of production); and

a permanent site (i.e. more than one year) which is used for temporary storage of waste;

but excluding:

facilities where waste is unloaded in order to permit its preparation for further transport for recovery, treatment or disposal elsewhere; and

storage of waste prior to recovery or treatment for a period less than three years as a general rule; or

storage of waste prior to disposal for a period less than one year. *NOTE See annex A.3, Council Directive 1999/31/EC, Article 2.g.

landfill gas enhancement[1]: activity to increase the rate of landfill gas production. *NOTE Landfill gas is defined in Council Directive 1999/31/EC, Article. 2.j (see annex A.3).

landfill gas management[1]: activity to supervise and control the extraction, collection, recovery or disposal and transport of landfill gas. *NOTE Landfill gas is defined in Council Directive 1991/31/EC Article. 2.j (see annex A.3).

landfill management[1]: activity to plan, operate, supervise and control a landfill. *NOTE Landfill management includes after-care (see 3.3).

landfilling[1]: activity to place waste in a landfill

landfill leachate collection[1]: collection of leachate from landfills

leachate collection[1]: collection of leachate from waste management
leachate treatment[1]: activity to reduce the polluting potential of leachate

M

mechanical treatment[1]: treatment by mechanical means

N

nonorganic material[2]: material that microorganisms cannot degrade.

O

open composting[1]: composting in defined open areas
operator[1]: natural or legal person responsible for a landfill in accordance with the internal legislation of the Member State where the landfill is located; this person may change from the preparation to the aftercare phase. *NOTE See annex A.3, Council Directive 1999/31/EC, Article 2.l.
organic material[2]: material derived from animal or vegetable sources that microorganisms can generally degrade.

P

producer[1]: anyone whose activities produce waste ("original producer") and/or anyone who carries out pre-processing, mixing or other operations resulting in a change in the nature or composition of this waste. *NOTE See annex A.1, Council Directive 91/156/EC, Article 1.b.
pyrolysis[1]: thermal treatment with limited supply of oxygen

R

reactor composting[1]: composting that takes place in a closed environment with complete protection against climate influence and with collection and treatment of the process air
recovery[1]: any of the operations provided for in Annex IIB [91/156/EEC]. *NOTE See annex A.1, Council Directive 91/156/EEC, Article 1.f.
recyclable[2]: able to be collected, separated, and processed to be used as raw material in the manufacture of a new product.
recycling[1]: activity in a production process to process waste for the original purpose or for other purposes, excluding energy recovery. *NOTE Compare also annex A.2, Council Directive 94/62/EC.
recycling[2]: the process by which waste materials are transformed into new products in such a manner that the original products may lose their identity.

S

separate collection[1]: collection of sorted waste streams
shredding[1]: mechanical treatment in order to reduce the size of the item by tearing, cutting or other means
solidification[1]: treatment resulting in a high cohesiveness
solid waste management[2]: systematic control of generation, storage, collection, transport, separation, processing, recycling, recovery, and final disposal of solid waste.
sorting[1]: activity to split or keep apart solid waste into designated categories
sorting at source[1]: sorting that is carried out where the waste arises.

T

thermal treatment[1]: treatment by thermal processes
transfer station[1]: plant where waste is transferred from one means of transport to another. *NOTE Mostly, the waste is transferred from smaller transport units to larger ones.
treatment[1]: physical, thermal, chemical or biological processes, including sorting, that change the characteristics of the waste in order to reduce its volume or hazardous nature, facilitate its handling or enhance recovery. *NOTE See annex A.3, Council Directive 1999/31/EC, Article 2.h.
tokais (means "I pick")[2]: individuals who collect waste from waste bins, roadsides, and dump sites.

U

underground stoage[1]: activity to permanently store waste in a deep geological cavity. *NOTE 1 The geological cavities may either be natural or man made (mines). *NOTE 2 For the interpretation of "permanent", see Council Directive 1999/31/EC (annex A.3).

underground stowage[1]: activity to exploit the properties of mining residues or other suitable material including certain wastes in order to achieve certain purposes in underground mines. *NOTE Such purposes are for example to support the strata, to strengthen the stability of excavations or to fill cavities to improve ventilation, fire protection or mine climate.

V

vangari dokan (Vangari = scrap; dokan = shop) [2]: small shops that buy and sell recyclable waste and old and scrap items.

vitrification[1]: treatment that stabilises waste to a glass like material.

W

waste management[1]: collection, transport, recovery and disposal of waste, including the supervision of such operations and aftercare of disposal sites. *NOTE 2 See annex A.1, Council Directive 91/156/EEC, Article 1.d. *NOTE 2 Waste management may also include the prevention or reduction of waste generation.

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KCC-Awareness Centre Toolbox
for Reducing Plastic Pollution

Authors:
Heide Kerber (ISOE), Senta Berner (BUW)

Contributors:
Fahima Akter, Sheikh Enjamamul Haque, S M Nahin Rahaman, Anik Sarkar, Ankon Singh

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Contact:
Awareness Centre, Khulna City Corporation

Second Floor, Khulna City Corporation

Facebook:
www.facebook.com/scip.awc.kcc

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