FR-UBM-9.1.1.9/V0.R2
Versi online:
http://journal.ubm.ac.id/index.php/titik-imaji/
Hasil Penelitian
JURNAL TITIK IMAJI
Volume 9 Nomor 1: 261 – 277, Maret 2026
p-ISSN: 2620-4940
e-ISSN: 2621-2749

Perancangan Video Animasi 2D "Water Refill Network" sebagai Usaha Mengurangi Sampah Plastik di Bali

2D Animation Video Design for "Water Refill Network" as an Effort to Reduce Plastic Waste in Bali

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Diajukan 18 Maret 2026 / Disetujui 26 Maret 2026

Abstract

Penelitian ini membahas mengenai perancangan video kampanye animasi 2D "Water Refill Network" (WRN) sebagai upaya mengurangi sampah botol plastik di Bali akibat pariwisata massal. Meningkatnya konsumsi botol plastik serta dampaknya terhadap pencemaran lingkungan, mikroplastik, dan emisi gas CO2 mendorong perlunya media kampanye yang efektif untuk meningkatkan kesadaran serta partisipasi bergabung dengan program WRN yang dibuat oleh Trash Hero. Program tersebut menghubungkan bisnis dengan masyarakat melalui penyediaan titik isi ulang air gratis guna mengurangi penggunaan botol plastik sekali pakai. Penelitian ini menggunakan metode kualitatif deskriptif, melalui wawancara, kuesioner, dan kajian literatur. Analisis data dilakukan menggunakan thematic analysis untuk mengidentifikasi tema kesadaran lingkungan, motivasi, dan tantangan, serta preferensi media kampanye. Hasil penelitian menunjukkan bahwa animasi 2D bergaya line art dengan durasi 1-3 menit, visual sederhana, dan pesan yang langsung pada inti efektif sebagai media kampanye digital. Video yang dirancang diharapkan mampu meningkatkan eksposur WRN, menarik lebih banyak mitra bisnis di Bali, serta berkontribusi pada pengurangan sampah plastik dan emisi CO2 secara berkelanjutan.

Kata Kunci: animasi 2D, kampanye sosial, sampah plastik, Trash Hero Water Refill Network, Bali

Abstract

This research discusses the design of a 2D animated campaign video for the "Water Refill Network" (WRN) to reduce plastic bottle waste in Bali caused by overtourism. The increasing consumption of plastic bottles and their impact on environmental pollution, microplastics, and CO2 emissions underscore the need for an effective media campaign to raise awareness and encourage businesses to participate in the WRN program initiated by Trash Hero. This program connects businesses and communities by providing free water refill stations to reduce single-use plastic bottle use. This research employs a descriptive qualitative method, using interviews, questionnaires, and a literature review for data collection. The data were analysed using thematic analysis to identify themes of environmental awareness, motivation and challenges, and campaign media preferences. The results indicate that a short 1-3 minute duration 2D animation using a simple line art style and concise messaging is effective as a digital campaign. The designed video is expected to increase the program's exposure, attract more business partners in Bali, and contribute sustainably to reducing plastic waste and CO2 emissions.

Keywords: 2D Animation, social campaign, plastic waste, Trash Hero Water Refill Network, Bali

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Volume 9 Nomor 1: 261 – 277, Maret 2026
p-ISSN: 2620-4940
e-ISSN: 2621-2749

Introduction

Plastic is widely used due to its practicality for a range of applications, from food and beverage packaging to household furniture. However, the increase in plastic production also impacts the environment, as production and combustion processes emit greenhouse gases such as CO_2, CH_4, O_3, and N_2O. Indonesia ranks 6th among the world's largest CO_2 emitters, with total emissions of around 1.2 billion tons of greenhouse gases in 2023. Furthermore, not all plastic can be recycled or safely burned, so much of it ends up in landfills or pollutes the environment, including rivers, beaches, and oceans. Plastic waste is the remains of polymers composed of monomers bound by chemical bonds, which are flammable and can produce toxic CO2 (carbon dioxide) gas that pollutes the Earth's atmosphere, contributing to global warming. Plastic waste cannot be decomposed by soil microorganisms, leading to the death of soil fauna due to low soil oxygen levels (Purwaningrum, 2016). To reduce waste, we can practice the 3Rs: Reduce, Reuse, and Recycle (Reduce, Turn into handicrafts, and Recycle) (Kristina et al., 2020).

High plastic consumption exacerbates this situation. Indonesia ranks 8th among the world's largest plastic consumers, with 3,366,941 tons in 2023, while 98.42% of plastic waste is uncollected and improperly managed. This problem is particularly evident in Bali, which was even included in Fodor's No List 2025 as an unsuitable tourist destination due to mass tourism triggering a plastic waste crisis, also known as the "Plastic Apocalypse" (Bell et al., 2024). The tourism industry is a major contributor to waste in Bali (Kristina et al., 2020).

Bali is estimated to produce around 1.6 million tons of waste annually, of which nearly 303,000 tons are plastic waste. Approximately 4.28 tons of waste are produced daily, of which approximately 20% is plastic, while approximately 11% flows into the ocean (Geraldine et al., 2021). Fifty per cent of this waste originates from the Denpasar, Badung, and Gianyar areas, which are centres of tourism activity (Muhajir, 2019). Furthermore, the largest contributors to plastic waste in Bali are single-use beverage packaging. In response to this problem, Trash Hero World began operating in Indonesia in 2014, conducting weekly cleanup activities with volunteers across Bali, including Sanur, Kuta, and Canggu (Trash Heroes, 2025). Although these activities are effective at cleaning beaches and raising public awareness, they have not significantly reduced plastic waste.

To address the plastic waste problem, the government has developed policies, regulations, and infrastructure to reduce the negative impacts of plastic bottle waste. Meanwhile, non-governmental organisations (NGOs) have developed consumer education strategies to address the consumption and disposal of plastic bottles, encouraging behavioural change through the installation of water refill stations in waste-prone areas and public awareness campaigns about plastic waste (Willis et al., 2019). The Water Refill Network (WRN) aims to prevent plastic waste. Trash Hero connects businesses willing to provide free water refills and, if desired, sells safe and affordable refillable bottles. This system eliminates the need for single-use bottled water. The program involves both businesses and consumers, making it a comprehensive community initiative (Trash Heroes, 2025).

This program allows people to refill water for free using special Trash Hero bottles or at a low cost for other bottle users. To date, there are 579 refill stations worldwide, with 84 of them in Bali. Since 2014, this program has sold 111,068 drinking bottles and is estimated to have reduced the use of around 42,492,570 single-use plastic bottles, as well as emissions by up to 2,219.6 tons of CO_2 (Trash Heroes, 2025). Trash Hero plans to expand the WRN network by partnering with more businesses in the tourism and entertainment sectors.

The WRN Trash Hero program still lacks exposure; therefore, a media campaign is needed to encourage participation as a WRN partner. Campaign media is a form of communication activity carried

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p-ISSN: 2620-4940
e-ISSN: 2621-2749

out to achieve a sustainable impact on a specific group of people in line with the campaign issue (Isla et al., 2025). Online campaign activities use social media to connect with the public and raise awareness of an issue (Haider, 2016). When delivered through social media, information will have a significant impact when it is valid, interesting, and relevant (Purba et al., 2023). Campaign messages consist of ideas or information published to be known or understood by the public. The appeal of campaign messages is crucial for conveying the desired message and attracting the target audience's attention (Alamsyah & Sumarni, 2024).

The media used for the campaign was an animated video. Animation provides a comprehensive introduction to animated films, from cartoons to computer animation, and is a key element in technology-based learning. In the modern era, Animation has become a crucial tool for presenting multimedia content to facilitate comprehension (Handayani et al., 2022; Sabil et al., 2025). Animation has now become a platform that captures visual attention through its magic (Praveen & Srinivasan, 2022).

The animation technique used is frame-by-frame, a series of frames that describe each movement and change in shape of an object. Starting by drawing a frame at the beginning and a frame at the end, then drawing in between to describe the movement of the object from point A to point B. The movement of the image is measured in frames per second (fps). In film, a series of frames is shown at 24 frames per second (Yasa & Anggara, 2022).

To support this expansion, campaign media is needed that can explain the impacts of plastic use and effectively introduce the WRN program. One such medium is 2D Animation, which can visualise plastic production, the formation of microplastics, and their environmental impact (Cook et al., 2023). Research also shows that 2D Animation effectively captures audience attention through visual design, movement, and characters, making it a frequently used communication medium and marketing strategy (Dewangkara & Putra, 2023; Praveen & Srinivasan, 2022)

This research is developed from three previous studies. The first study, entitled "The Benefits of Visual Cartoons in an Effort to Disseminate Plastic Waste Reduction in Bali," was written by Swandi et al. (2021). The Balinese government is making efforts to reduce plastic waste by creating a policy requiring shopping centres to provide shopping bags for purchase on the spot. The shopping bags provided include illustrations that encourage reducing the use of plastic bags but lack attractive visuals, making them less effective at conveying the message. The use of cartoon media on shopping bags is tested to communicate the message using the Fresnault-Deruelle approach, which divides cartoon dimensions into 3 parts (Acoustic space, Visual space, Tactile space) to tell stories textually and contextually, with humour elements, without losing the meaning and message. The results of this study indicate that cartoon media is suitable for campaigning to reduce the use of plastic bags by highlighting familiar cultural and character references, making it easier for readers to understand.

The similarities between these two studies are their discussion of plastic waste, a major problem in Bali for years. The differences lie in the subject of the plastic waste study and the campaign media used to convey the message. This study focused on plastic bags, while the current study will focus on plastic bottles. The research methods used are similar, namely qualitative, but this study employs a semiotic approach. The media studied in this study is a cartoon on a shopping bag, whereas the current study uses a short 2D animation.

The second previous study, entitled New Social Movement Strategies in the Plastic Waste Reduction Campaign in Bali, was written by Geraldine et al. (2021). In response to the growing plastic waste in Bali, the Pulau Plastik campaign community launched a social movement to educate the public and encourage them to reduce plastic waste. This study focuses solely on the Pulau Plastik campaign strategy and does not examine other aspects. The social movement strategies implemented include community screenings of the Pulau Plastik series, advocacy with the government and the public, and

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p-ISSN: 2620-4940
e-ISSN: 2621-2749

the use of social media and songs written by Gede Robi, the initiator of the Pulau Plastik Campaign and a member of the band Navicula. Furthermore, Gede Robi collaborated with the Trash Hero team to distribute bamboo straws to food stalls willing to replace plastic straws. The results of this study provide recommendations to the Balinese government to be more assertive in tackling the plastic waste problem and to Pulau Plastik to further improve its strategies and activity programs.

These two studies share similarities in their topics: the accumulation of plastic waste in Bali, their discussion of Trash Hero's efforts to reduce plastic waste, and their use of qualitative research methods. The differences with this study are the community studied and its purpose, which is solely to describe the Pulau Plastik campaign strategy in its efforts to shape public opinion.

The third previous study, entitled "Information Media on Internet Providers Based on 2D Animation," was written by Dewangkara & Putra (2023). This study aims to design promotional media to increase sales for Hinet, a wireless internet access company. The promotional media is a short 2D animation to be distributed on social media. The research method used is a mixed-methods approach (qualitative and quantitative) to collect data on Hinet and on how to design 2D Animation promotional media through observation, interviews, and questionnaires. The results of this study show that 2D Animation is a suitable medium for promotion across various social media platforms. A questionnaire distributed to 50 respondents tested whether the designed 2D Animation is attractive, easy to understand, and whether the intended message is conveyed.

This research shares similarities with the current study, namely the design of 2D animation media and the research methods used. The difference lies in the research's subject and object. This study is aimed at Hinet and does not address Trash Hero's efforts to reduce plastic waste in Bali through the Water Refill Network.

Based on this background, this study discusses the design of a 2D animated video as a campaign medium for the Water Refill Network in Bali. By visualising the impact of plastic on the environment, this video is expected to increase understanding and encourage companies in the hospitality and leisure sectors. and an entertainment company in Bali to join as a WRN partner. The Animation will be published through Trash Hero's social media channels to reach a wider audience and businesses.

Research methods

This study employed descriptive qualitative methods to understand the meaning and experiences of the research subjects (Creswell & Creswell, 2018). This approach was used to explore the experiences and motivations of Trash Hero and its Water Refill Network (WRN) program partners in Bali, and to gain perspectives from companies that had not yet joined the program. These insights were then translated into narrative elements for short animations, ensuring the resulting work was not only visually appealing but also emotionally resonant with partners and potential partners. The data collection stage was conducted through interviews, questionnaires, and literature reviews on plastic waste in Bali, as well as the creation of short animations as a campaign medium. Participants were selected using purposive sampling and criterion sampling. The data obtained were used as the basis for determining the Animation's visual style, scriptwriting, storyboarding, and animation production.

Next, data analysis was conducted using thematic analysis to identify thematic patterns from the collected data (Braun & Clarke, 2006). Thematic analysis was selected for this study because the primary research focus is to extract, from the interview data, patterns, trends, motivations, and preferences of the target audience. This approach enables the researcher to map stakeholders' actual needs and perspectives to formulate solution- and effectiveness-oriented design strategies. The analysis results were then used in the idea conceptualisation stage, which included concept design, mood boarding, scriptwriting, storyboarding, and line art asset design. The animation production process

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involved moving objects into a series of scenes, which were then combined in post-production, along with the addition of voice-overs and sound effects. After the Animation was completed, an evaluation was conducted through interviews to assess the suitability of the content and techniques of making this 2D animated video as a WRN campaign medium. This 2D animated video was also tested with the target audience, including WRN partners and non-partners operating in the hospitality and leisure industry. and entertainment in Bali.

Results and Discussion

Data Analysis and Key Findings

This study used a descriptive qualitative method to understand the perspectives of Trash Hero, its Water Refill Network (WRN) partners, and potential partner companies. Informants were selected using criterion sampling, i.e., participants were selected based on specific criteria relevant to the study. The informants included Trash Hero World staff, Trash Hero Indonesia staff, three WRN partners in Bali, and three companies in the hospitality, leisure, and entertainment sectors that have the potential to become partners. A total of three Water Refill Network (WRN) partners and three non-partner companies were selected as primary participants because they operate within the hospitality, leisure, and entertainment sectors, which serve as the primary pillars of tourism in Bali. The fundamental rationale for selecting these six business entities was their strategic locations within mass tourism hubs, which account for 50% of Bali's total waste. By operating in the heart of tourism zones, these informants have direct exposure to the high consumption of single-use plastic bottles, a crisis often exacerbated by overtourism. Consequently, their perspectives are critical for designing campaign video content that is not only visually effective but also emotionally resonant with both current and potential partners.

Data collection was conducted through interviews with informants. Interviews with Trash Hero World staff aimed to understand the background, objectives, and implementation of the WRN program. Trash Hero is a non-governmental organisation focused on public education and reducing plastic pollution through activities such as beach cleanups and WRN development. The WRN program was created because beach cleanups alone were deemed insufficient to reduce plastic waste production, especially in countries where tap water is not available, such as Indonesia. Currently, WRN has spread to 15 countries, and the public can find water refill points through the Refill Station map available on the Trash Hero website.

Interviews with Trash Hero Indonesia staff provided insight into the implementation of the WRN program in Indonesia. The process for becoming a partner is relatively simple: providing a water gallon, a dispenser, and a "Trash Hero Refill Station " sign. Some partners also sell Trash Hero drinking bottles through a profit-sharing arrangement with the organisation. The program is promoted through volunteers' verbal communication and regular beach cleanups in various areas.

Interviews with three WRN partners revealed that the primary motivations for joining were environmental concerns and the ease of the registration process. Two of the three partners, working in the marine sector, have witnessed firsthand the impact of plastic pollution on marine ecosystems. The partners considered participating in WRN to have a positive impact on the environment and to enhance their business image. Meanwhile, interviews with three prospective partner companies revealed a high level of awareness of the plastic waste crisis in Bali, although some were unaware of WRN's existence. They were interested in joining if the procedures were efficient and would not burden their operations, but remained sceptical about the program's tangible impact.

As supporting data, informants were asked to review three animated reference videos about plastic pollution: "The Story of Plastic (Animated Short)", "What is Plastic Pollution? Animated Factual Video", and "What Really Happens to Plastic You Throw Away". The results showed that respondents tended to prefer animations with simple character designs, such as flat design or line art, moderate use

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of contrasting colours, and short durations of around one to three minutes. In addition, the use of semi-formal language was considered easier for the audience to understand.

The collected data were then analysed using thematic analysis (Braun & Clarke, 2006) to identify key themes. The analysis revealed three main themes: environmental awareness, motivation and challenges, and animated media preferences. The summarised thematic analysis structure table is shown in Table 1.

Table 1. Thematic Analysis Summary Table
Source: Author's Documentation (2025)

Environmental Awareness	Motivation and Challenges	Animated Media Preferences
All informants had a high level of awareness of the plastic waste crisis in Bali and had undertaken various simple efforts to protect the environment.	Motivation to join WRN stemmed from environmental concerns, while the main challenge was limited public exposure to the program.	Simple, informative, and easy to understand. Animation style preference: "The Story of Plastic (Animated Short)". Stickman, line art or flat design, and moderate use of contrasting colours.

Based on the analysis, the WRN campaign video was designed in a simple line-art animation style inspired by the video "The Story of Plastic" This style was chosen because it aligns with Trash Hero's visual identity, is easily understood by viewers, and effectively conveys educational messages about reducing plastic waste and the benefits of joining the WRN program.

Visual Conceptualisation: Conceptualisation and Script Writing

Based on the analysis, the 2D animated video for the WRN campaign will focus on strengthening public awareness of plastic waste by providing educational explanations of the plastic waste process and the ease of registering as a partner. The WRN campaign will be carried out through social media. This animated video is in portrait form with a resolution of 1080 pixels x 1920 pixels, adapting to the format of Instagram reels and TikTok videos. The script is designed with a narrative structure that begins with a provocative statement, introduces the issue of plastic waste and its impact on microplastic pollution and CO2 emissions, introduces WRN as a solution, explains the steps to register as a partner, and ends with an invitation to become a partner. The main message conveyed by the script is "Real action to reduce plastic bottle waste by joining WRN." The narration uses an English voice-over with an enthusiastic tone and clear articulation, along with an Indonesian translation, to reach a wide audience.

The Animation uses stickman and line art styles, with dominant black-and-white colours, as well as Trash Hero's signature yellow and light blue, on a plain white background. Objects in each scene will be animated at 24 fps, and several secondary objects will loop to produce repetitive movements. Transitions between scenes will be continuous to have a flow that is easier for the audience to understand. This Animation lasts 1 minute and ends with a call to action that invites the public to participate in the WRN program to help reduce plastic waste and maintain environmental sustainability.

In writing the script, the main message to be conveyed was "Real action to reduce plastic bottle waste by following the WRN," and it was also important to understand the target audience to determine the right tone. Therefore, the script was designed as shown in Figure 1.

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[Voiceover]

What happens when someone asks for water in your business? Every day, millions of people drink from plastic bottles - often because they have no other choice. These bottles are made from fossil fuels. They are used once, then break down into toxic microplastics that poison our oceans, our soil, and even our bodies.

But here's the good news: your business can change that. Offering free water refills is a step you can take today to help people reduce plastic bottle waste. The next step is to tell everyone about it! The Trash Hero Water Refill Network connects people with the places that support them to avoid plastic bottles.

Here's how it works:

Set up your refill station and display our sign so people know they're welcome to come in and refill. Then, snap a photo and register at trashhero.org/refill. We'll add your business to our global refill map, helping new customers find you. There's no cost, other than the water you provide.

The benefits? Reduce waste and CO2 emissions in your local community. Find new customers and keep existing ones coming back. Stand out as a business that takes action, not just talks about it. It's easy to become a Trash Hero! Join the refill network today!

Figure 1. Water Refill Network Video Campaign Script
Source: Author's Documentation (2025)

The voice-over or narration uses semi-formal English. The tone is enthusiastic and the articulation clear. This animated video will include subtitles for the voice-over translation into Indonesian to reach a wider audience.

2D Animation Production Process

In animation creation, storyboards are used to visualise scenes from a pre-designed script. The storyboard for the WRN campaign animation video is shown in Figure 2. This storyboard was digitally designed. In addition to depicting the scenes in the animated video, the storyboard also explains the transitions between scenes and the movement of animated objects, making them easier to visualise.

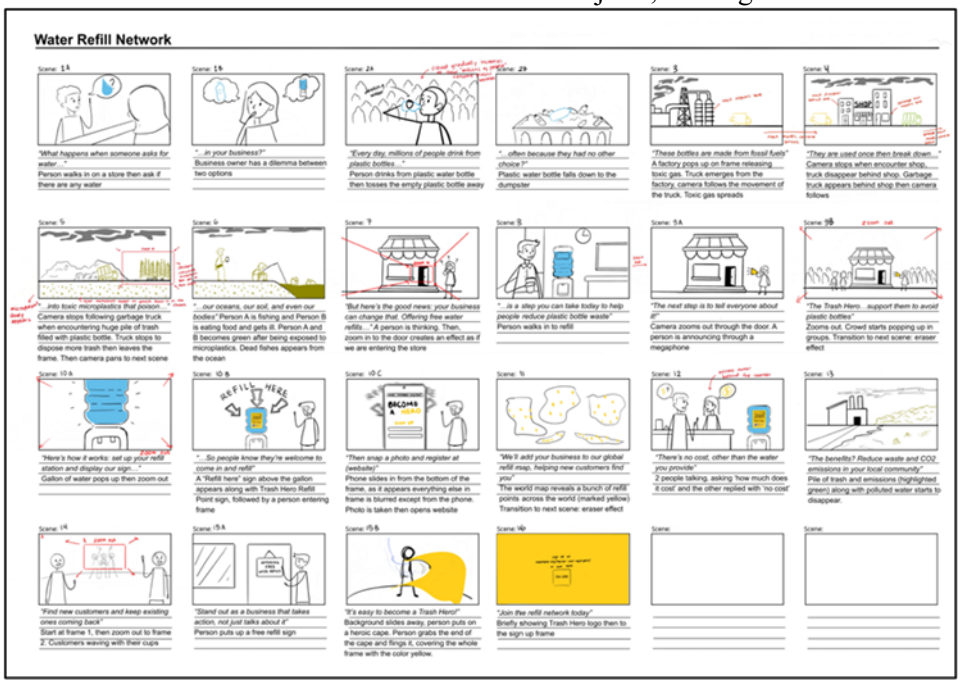

Figure 2. Storyboard Water Refill Network Video Campaign
Source: Author's Documentation (2025)

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After designing the storyboard, it became clear which image assets needed to be animated. These image assets were derived from real-life images and combined into a mood board as a reference for asset creation, as shown in Figure 3.

Figure 3. Asset Reference Mood Board
Source: Author's Documentation (2025)

A new mood board was created, containing assets derived from the reference. These assets were digitally drawn on Procreate in line art style using Trash Hero's brand colours, consistent with the results of interviews with partners and non-partners, as well as with Trash Hero's expectations. The asset images were made as similar as possible to the reference, then compiled into a new mood board in the same order as the reference mood board. The resulting asset mood board is shown in Figure 4.

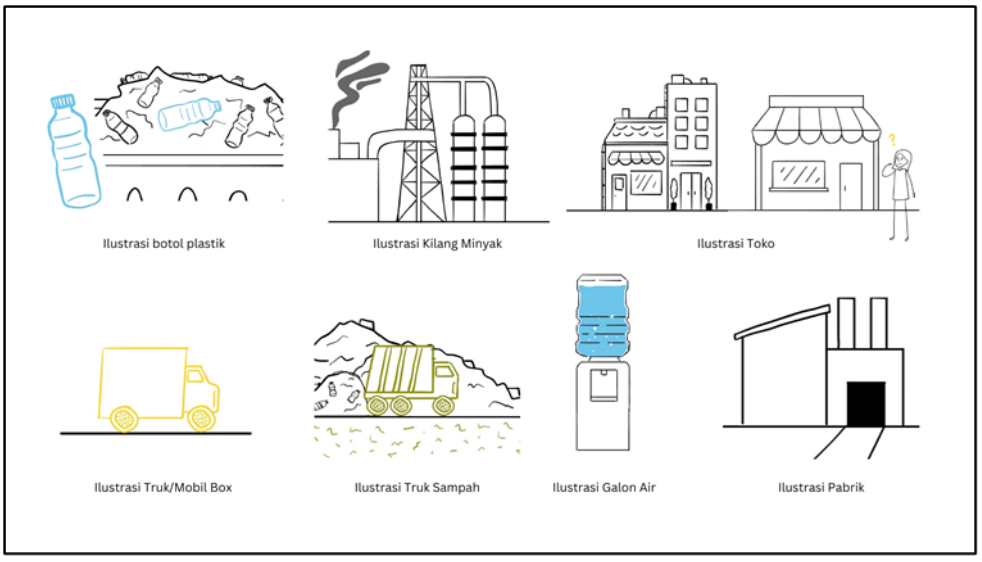

Figure 4. Asset Design Mood Board
Source: Author's Documentation (2025)

These designed assets represent the main objects in an environment, as depicted in the storyboard scenes. The environment represents the atmosphere or situation in a scene and is drawn based on the main objects in that scene. A depiction of the environment is shown in Figure 5.

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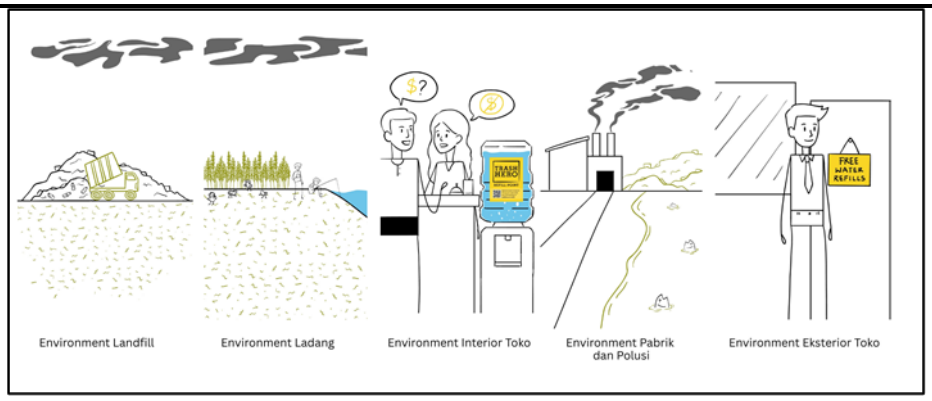

Figure 5. Environment
Source: Author's Documentation (2025)

After the environment is created, stickman characters are introduced to the scene to demonstrate social interactions, express reactions to situations, and highlight the benefits of registering a WRN. When creating stickman characters, a reference for character design is necessary. The use of a stickman style matches the line art used in asset and environment design and is more business-friendly and familiar, as shown in Figure 6.

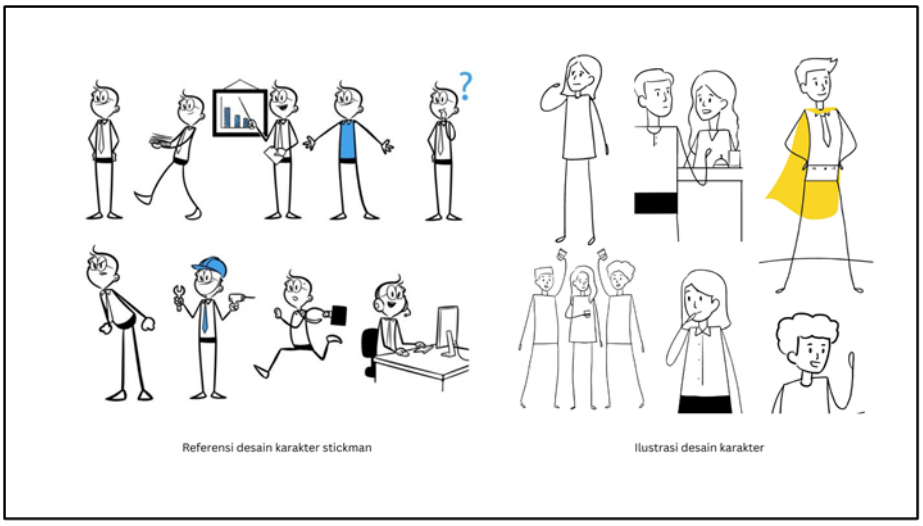

Figure 6. Character Design
Source: Author's Documentation (2025)

Once asset creation is complete, the animation production phase begins by animating the scenes based on the storyboard sequence, from the first to the last. Each scene consists of various animated asset objects and is divided into sections to facilitate keyframing and timeline organisation.

To operate Adobe Animate, animators work on a timeline by treating each asset as a symbol, a collection of graphic elements that form an object, making it easier to animate. To create a sense of dimension, layering is used to separate the foreground (main object) from the background. The animation process involves placing keyframes at the beginning and end of a frame on a layer, then applying techniques such as tweening to move objects from one point to another and scaling to enlarge or shrink them.

Additionally, to produce more expressive movement, a frame-by-frame animation technique is used, in which the object's movement is drawn in each frame. This process begins by drawing the start

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and end positions of the movement, then continues with creating in-betweens to create smooth movement transitions.

In post-production, all animated scenes were combined in Adobe Premiere Pro, alongside the voice-overs, which were added and edited to match the animated visuals. Furthermore, various sound effects, such as whooshes, pops, the sound of plastic bottles being crushed, and a garbage truck, were added to support the Animation's movements. The sound effects volume was adjusted so they did not exceed the voice-over volume. Furthermore, background music was added at a low volume to build an emotional atmosphere.

The English-language campaign video was then subtitled in Indonesian to make it easier for a wider audience to understand. The final stage was rendering, which produced a final video product in the H.264 format, with a frame size of 1080 × 1920 pixels (portrait) and a frame rate of 24 fps. Audio rendering was performed using the AAC codec with samples. rate of 48,000 Hz, which is the audio quality standard for video production.

In addition to the 2D animated video, supporting posters were also designed to expand the reach of the WRN campaign. The posters were easily distributed to non-partners and posted in various public locations within easy reach of business owners to raise awareness of the WRN program.

The poster was designed using Trash Hero's brand colours, namely yellow and blue, and uses stickman character images to add a mood element. and feel based on the character's facial expressions. The fonts used are Bobby Jones and Chunk Five. Bobby Jones is used as a sub-title because it is a sans-serif font with a style that matches the line art design. Chunk Five is used for the title because the serif font resembles the Trash Hero logo. Both fonts are used for their boldness, emphasising the invitation to join WRN. In addition to the line art design style, the characters use blue elements resembling waves and yellow elements resembling confetti and fireworks. The WRN campaign poster design is shown in Figure 7.

Figure 7. Poster Design
Source: Author's Documentation (2025)

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Expert Evaluation and Audience Testing

The finished campaign animation video needs to be evaluated by an experienced animator for professional feedback on the animation techniques, and by Trash Hero to ensure it aligns with Trash Hero's branding and expectations.

The first evaluation was conducted through interviews and by showing the animated video directly to Gayus Herfandi, an animator, who assessed it as good. The animation style used was suitable for a social campaign. Still, several reviewers noted that the animation technique lacked anticipatory movement at the start, particularly during the scene where a character draws a megaphone. There was also a scene with squash and stretch that should be made more natural, not stiff.

Based on the input, the scene mentioned is revised to create more lively animations by changing the in-betweens and adding more dynamic movement to create a pop or bounce effect. The lack of anticipation in the scene mentioned was corrected for a more natural movement by inserting a frame before the first frame in which the character lifts the megaphone. Creating a realistic physics effect: when a person draws an object, their hand would move backwards before moving forward, lifting the object.

After revising the animated video based on the animator's evaluation results, it was evaluated by Trash Hero during an online meeting. According to Trash Hero, the WRN campaign animated video was deemed in line with the brand's identity through the use of brand colours, minimalist line art, and stickman styles. This animated video was deemed capable of conveying WRN and had good quality, so it was worthy of being uploaded to Trash Hero's social media. Overall, the evaluation results stated that this 2D animated video was suitable for use as a social campaign medium, aligned with Trash Hero's brand identity, and of good quality for upload to Trash Hero's social media.

To prove whether this 2D animated campaign video successfully conveys its message, attracts the target audience, and is suitable as a campaign medium, testing is necessary. This testing was conducted with WRN partners and non-partners by sharing a video link and an essay-style questionnaire link for respondents to complete. According to partners and non-partners, the script flow was clear, and they understood the message very well. In terms of animation visuals, partners and non-partners liked the animation style because the design was neat and clearly illustrated the information in each scene. However, some partners and non-partners said that the animation movement was quite minimalist and wished there were less variation. For non-partners, this 2D animated campaign video certainly had an impact, increasing their interest in joining, but they would still consider joining the WRN program. The results of testing conducted with partners and non-partners showed that the designed 2D animated video was suitable as a medium for the Water Refill Network campaign.

2D Animation Video Result

The Water Refill Network (WRN) campaign animation video, aimed at promoting the Trash Hero program to reduce plastic bottle waste, shows the real impact of plastic pollution through microplastics and CO2 emissions. This campaign video uses 2D Animation to visualise the process of plastic bottles starting in oil refineries, which emit CO2, then being distributed to shops, where they are collected again as waste and disposed of in landfills, where microplastics spread and pollute the environment and marine ecosystems. The design is a 2D animation with a line art style. It uses Trash Hero's brand colours of yellow and light blue. It also uses brownish green to represent microplastic pollution and grey to represent CO2 gas pollution.

Scene 1A with a medium camera shot. The shot shows a customer coming into a business and asking for water. The customer appears in the scene, followed by a callout speech balloon showing the customer asking the business owner if water is available, with an image of water droplets and a question mark in the balloon text. The animated movement of the customer waving his left hand to indicate that he is asking. Switching to scene 1B, the business owner is seen confused and must decide whether to give water from a plastic bottle or a gallon. The business owner puts his hand to his mouth, indicating thought. Then, text balloons in the form of clouds to depict the contents of the business owner's mind

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appear one by one. The first cloud balloon text shows an image of a plastic bottle, and the second cloud balloon text shows an image of a water gallon. After scene 1B, there is a transition to scene 2A.

The transition between the scenes shows the camera slowly zooming in on the plastic bottle image asset in the cloud balloon text, then slowly the cloud balloon text begins to disappear, and the plastic bottle asset stops right in the middle of the frame. The plastic bottle in the centre of the frame is then seen being taken by a hand that appears from outside the frame. Then, in scene 2A, a close-up shows someone taking the plastic bottle, about to drink it until it is empty. After drinking water from the plastic bottle, the person throws the empty plastic bottle out of the frame. In the background, as the person drinks water, a group of people slowly appears to show the number of people, providing a visual for the voice-over that says, "Millions of people drink water from plastic bottles every day." The camera slowly zooms in on someone drinking water, with the background increasingly blurred, so the audience is more focused on the act of drinking and throwing the plastic bottle. Continued with scene 2B with a close-up camera shot slowly zooming in to an extreme close-up, which shows the empty plastic bottle that was thrown landing in a trash can containing other plastic bottles. The colour blue is applied to only one plastic bottle to focus the audience on that one bottle and prevent distraction from the others in the trash can. The transition to the next scene uses effects such as erasing the image on the image media, so that the frame becomes plain white. Scene 1A, 1B, 2A, and 2B are shown in Figure 8.

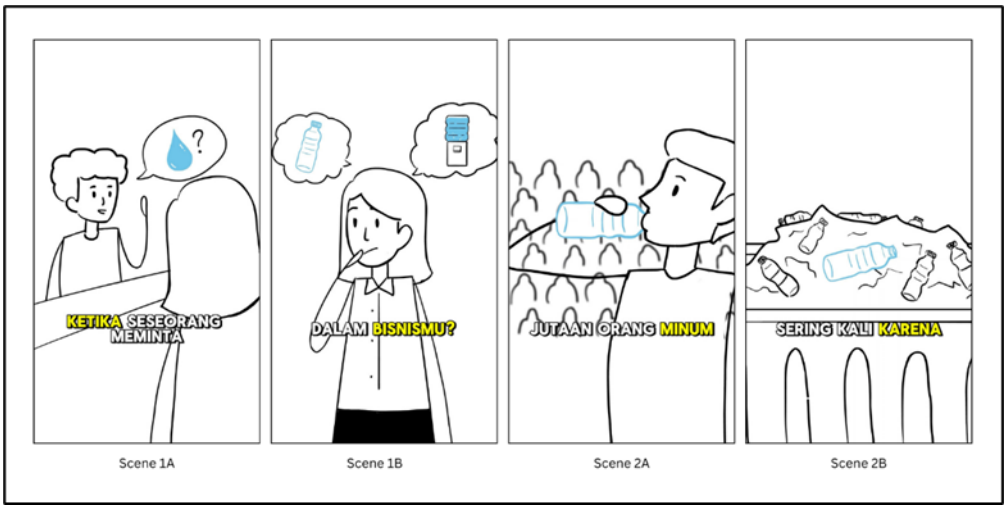

Figure 8. Scene 1A,1B, 2A, and 2B
Source: Author's Documentation (2025)

In Scene 3, an extremely long shot shows an oil refinery; then grey smoke slowly emerges from it, polluting the air. Then a box truck appears from behind the oil refinery, and the camera pans right as it moves away. The scene continues to scene 4; the camera stops on a shop in the centre of the frame, and the box truck disappears behind it. Then, a garbage truck comes out from behind the shop. The camera pans right, following the garbage truck as it moves away from the shop until the shop is out of frame, then moves to scene 5.

In scene 5, a garbage truck stops at a landfill in the centre of the frame. The truck slowly dumps a pile of plastic bottles into the landfill, and a mass of microplastics emerges from the pile, spreading across the ground. The camera then pans right to scene 6.

In scene 6, it starts with an extremely long shot, then zooms in to a long shot. Scene 6 shows 4 chickens feeding on food scattered on the ground, contaminated with microplastics; a person eating snacks; and someone fishing. After the person eats the snacks, his stomach hurts, and he feels nauseous. Then everything turns a brownish-green, indicating contamination by microplastics. The sea that turns green also kills the fish in it, and slowly, a dead fish rises to the surface. The transition to the next scene uses an effect that erases the image until the entire frame turns white. Scenes 3, 4, 5, and 6 are shown in Figure 9.

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p-ISSN: 2620-4940
e-ISSN: 2621-2749

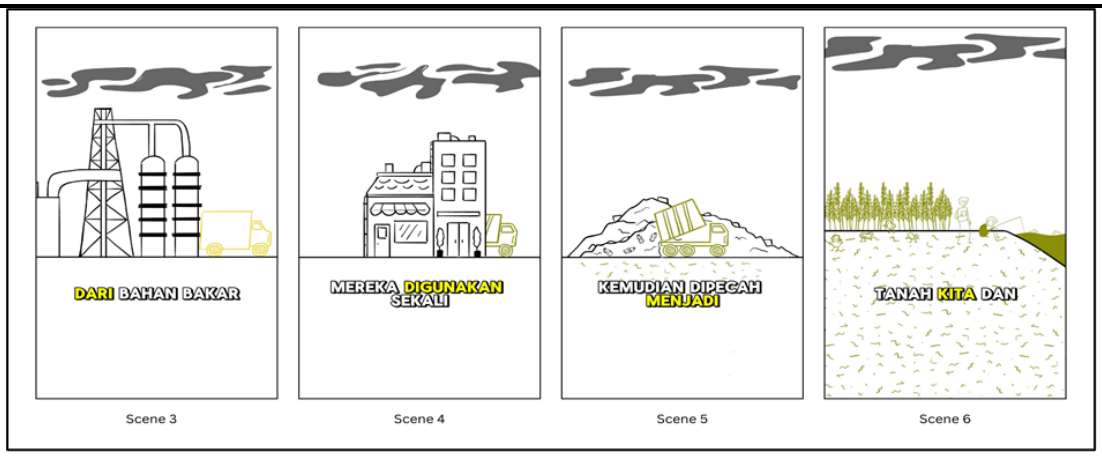

Figure 9. Scene 3, 4, 5, and 6
Source: Author's Documentation (2025)

Scene 7 begins with a plain white frame, showing a shop and a business owner contemplating in front of it. The camera takes a long shot, then zooms in on the shop, and the shop door opens, giving the impression that the audience is walking into the shop. Next, the transition to the next scene is a fade to white. Scene 8 fades in, showing the shop interior with a refillable gallon jug. A person enters the frame, smiling, holding an empty glass, indicating that the customer is happy with the free water refills. The transition to the next scene is similar to the previous transition: a fade to white, then the next scene fades in. Scene 9A begins with an extreme close-up of the shop door, then the camera zooms out to a wide shot, making it seem as if the audience is leaving the shop. The shop owner takes out a megaphone and begins spreading the word about the free refills at his shop. After that, the camera zooms out to a long shot, becoming scene 9B, and a crowd slowly fills the shop. The transition to the next scene has an effect like erasing the image, leaving the entire frame white. Scenes 7, 8, 9A, and 9B are shown in Figure 10.

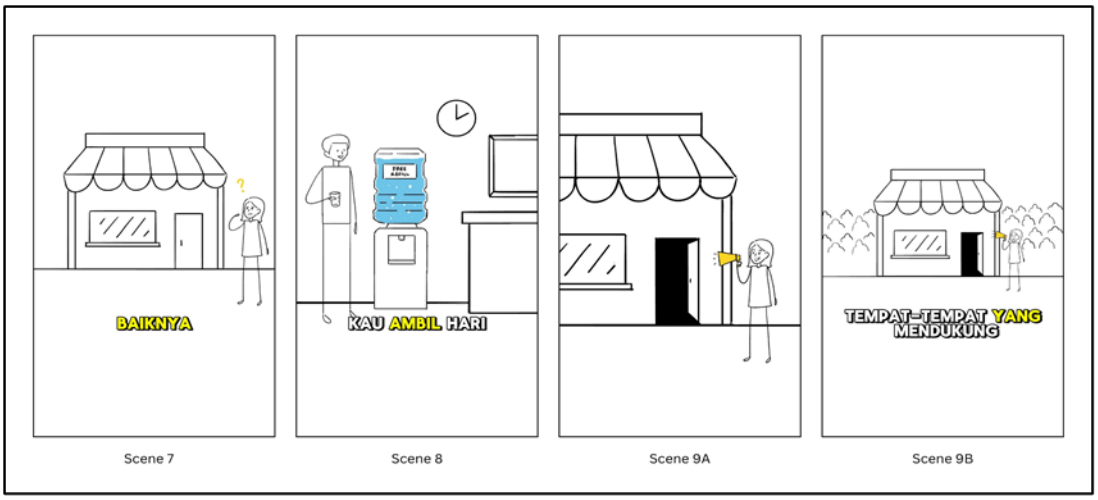

Figure 10. Scenes 7, 8, 9A, and 9B
Source: Author's Documentation (2025)

In scene 10A, the image asset of a water gallon appears in the middle of an empty frame with a medium shot. Then, in scene 10B, the camera zooms out to a wide shot and shows a person standing next to a water gallon, waving as if inviting. Then, a "Trash Hero Refill Point" poster is attached to the water gallon, followed by a yellow arrow pointing to it that moves up and down. In scene 10C, a cellphone (HP) enters from the bottom of the frame until it is in the middle of the frame. The cellphone shows the camera display on the screen. The screen turns white, indicating the camera is taking a photo,

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e-ISSN: 2621-2749

then the cellphone screen displays a self-registration page to become a WRN partner. Then, the screen display changes to a map; the camera zooms in as if we are entering the cellphone screen, then continues to scene 11, zooming out to show a world map.

The end of scene 10C transitions to scene 11, which shows a world map. Then, gradually, several yellow dots, indicating refill points at WRN Trash Hero's partner businesses, begin to appear in various regions. The scene then transitions with a wipe effect, fading to white.

Starting from a white frame, in scene 12, a medium-long shot shows an image asset of a customer, the business owner behind the reception desk, and a water gallon with a "Free Water Refill Point " poster belonging to Trash Hero. The customer's hands move in a gesture of conversation and questioning the business owner. The mouths of both individuals move, indicating that they are conversing. Then a balloon text with an illustration of a dollar bill and a question mark appears from the customer, indicating that the customer is asking about the price to refill his water bottle. This question is then answered by the business owner with a balloon text containing an illustration of a dollar bill circled and crossed out, indicating that the business owner says there is no need to spend money to refill the bottle. Scenes 10A, 10B, 10C, 11, and 12 are shown in Figure 11.

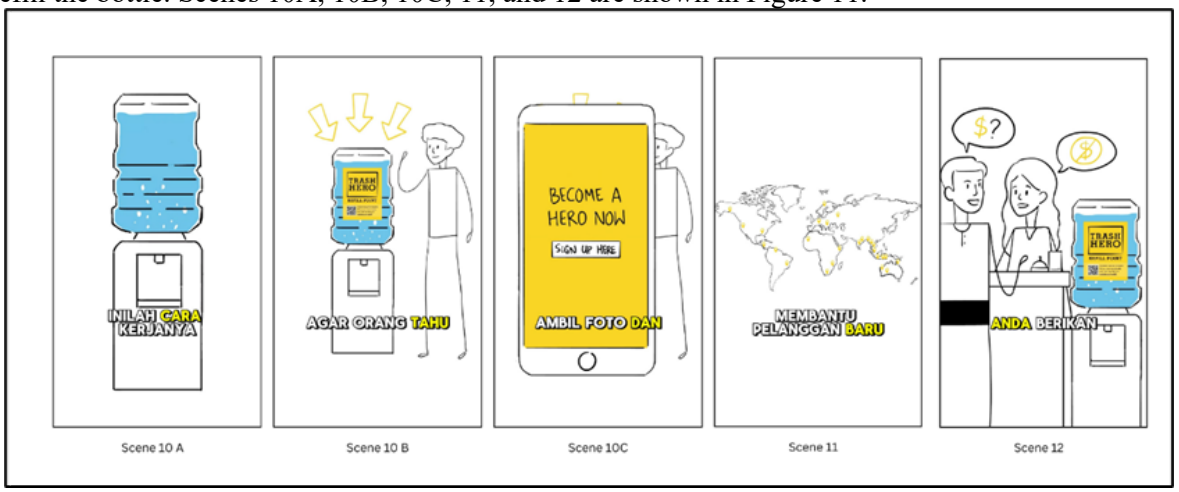

Figure 11. Scene 10A, 10B, 10C, 11, and 12
Source: Author's Documentation (2025)

In scene 13, an extreme long shot shows a factory emitting CO2, along with piles of plastic waste and the sea turning brownish-green, indicating pollution. Then, the pollution decreases, starting with the CO2 emissions disappearing, then the piles of waste disappearing, and finally, the sea water turning blue. In Scene 14, a medium-long shot shows three people happily holding up empty glasses as they queue to refill water. Then the camera zooms out, and two people are in the left and right corners of the frame. Then the assets of the three people become indistinct, making it difficult to distinguish the foreground from the background. From the voice-over, it can be seen that the three people are new customers, while the two are old customers.

Starting from an empty frame, scene 15A opens with a business owner putting up a sign that reads "Free Water Refills" in front of his shop. The camera shot is a medium long shot. Then, the shop and the sign move to the left out of the frame, and the camera zooms out until the long shot of the business owner is centred, then transitions to scene 15B. In scene 15B, the man takes out a yellow robe and puts it on. Then the man takes the end of his yellow robe and pulls it forward until it covers the entire frame.

The animated video concludes with scene 16, which shows the Trash Hero logo on a yellow background, followed by a QR code that directs to the Trash Hero website on the Water Refill Network Map, which shows free refill points at partner businesses and a button that directs to the partner registration page. Scenes 13, 14, 15A, 15B, and 16 are shown in Figure 12.

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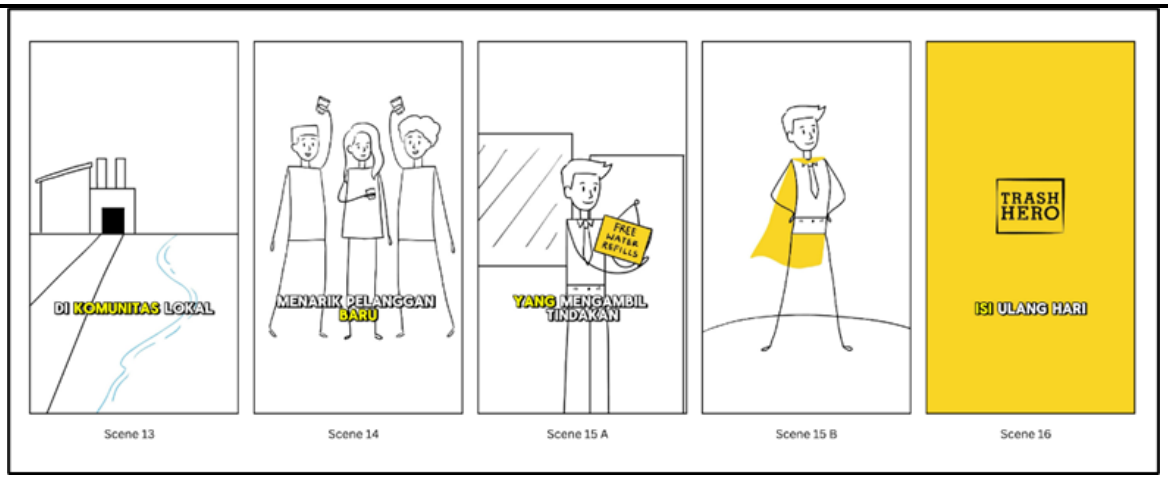

Figure 12. Scene 13, 14, 15A, 15B, and 16
Source: Author's Documentation (2025)

Conclusion

This study concludes that a 2D animated video is an effective social campaign medium for the Trash Hero organisation to promote the Water Refill Network (WRN) program, particularly among non-partner businesses in Bali. The resulting Animation is characterised by a minimalist visual style utilising line art and stickman characters integrated with Trash Hero's brand identity and colours. This one-minute video was produced in portrait format to optimise distribution across social media platforms and features an enthusiastic English voice-over with Indonesian subtitles to broaden the reach of its educational message on microplastic impacts and CO2 emissions. Through these persuasive and informative visual characteristics, the video is projected to increase public awareness and interest in participating in sustainable efforts to protect Bali's terrestrial and marine ecosystems.

As a next step in its development, this research can be expanded across various digital media ecosystems to strengthen the reach of the social campaign. The implementation of future technologies, such as augmented reality (AR)-based mobile applications, the production of educational short films, and the creation of serial content on YouTube, represents a strategic opportunity to convey environmental conservation messages more interactively and massively to a wider audience.

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