

SwitchMed II in Lebanon

Demonstrating Sustainable Consumption and
Production and Circularity Practices



نِسْدَوَّر
nüdawwer

Plastics Circle Summary Report

Project Implemented by: **nusaned**

July 2022 to July 2023

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United Nations Environment Programme

The United Nations Environment Programme (UNEP) is the leading environmental authority in the United Nations system. UNEP uses its expertise to strengthen environmental standards and practices while helping implement environmental obligations at the country, regional and global levels.

UNEP's mission is to provide leadership and encourage partnership in caring for the environment by inspiring, informing, and enabling nations and peoples to improve their quality of life without compromising that of future generations.

SwitchMed Programme

The SwitchMed programme is funded by the European Union (EU) and implemented by UNEP. It aims at achieving a Circular Economy in the southern Mediterranean by changing the way goods and services are produced and consumed. To achieve this, the SwitchMed provides tools and services directly to the private sector, supports an enabling policy environment, and facilitates exchange of information among partners and key stakeholders.

Nusaned

Nusaned is a Lebanese-based Non-Governmental Organization (NGO). Their aim is to empower and enable marginalized Lebanese communities by supporting sustainable development through a community-based approach. By offering access to food security, shelter, and continuous opportunities for creating productive economies, Nusaned works on building sustainable communities that are self-sustaining.

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1. Background

1.1 SwitchMed

The policy component of the **EU-funded SwitchMed programme**, led by **UNEP**, aims to develop and implement policies to switch to **Sustainable Consumption and Production (SCP)** and **Circular Economy (CE)** practices in Lebanon and 7 additional countries across the southern shore of the Mediterranean Sea.

Under SwitchMed I in Lebanon UNEP provided advisory services to the Ministry of Environment in the production and endorsement¹ of the Sustainable Consumption and Production National Action Plan ([SCP-NAP](#); SDG 12.1) with a focus on the industrial sector along the Litani Basin and Qaraoun Lake.

During SwitchMed II, considering the local context in Lebanon and as an entry point for piloting circular loops and SCP patterns, UNEP established a partnership with the civil society organization, Nusaned, to test SCP and CE practices and collect insights through a community-based demonstration project in the Mar Mikhael-Gemmayze area in Beirut. The project aims to develop impactful methodologies to:

- (i) **establishing circular loops with a focus on plastics and food waste**
- (ii) **reinforcing the greening of restaurants**

1.2 Sustainable Consumption and Production and Circular Economy?

Circular Economy is a concept and a model of consumption and production that builds upon value retention loops and involves several interconnected circular processes which are the 9 Rs: reducing by design, refuse, reduce and reuse, repair, refurbish, remanufacture, repurpose, and lastly recycle².

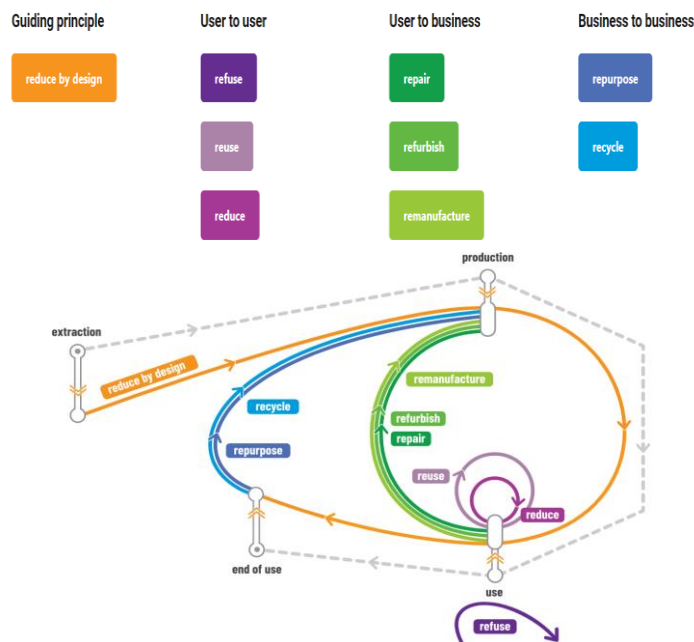


FIGURE 1 CIRCULARITY BUILDS UPON VALUE RETENTION LOOPS, AS SHOWN ON THE UNEP CIRCULARITY APPROACH

Sustainable Consumption and Production is about “doing more and better with less³”; which means maximizing the proper use of services, products, and resources to get the best possible outcomes with the least number of raw materials being wasted in the production phase. As for the consumption phase, shifting to sustainable practices involves changing consumers behaviour which will affect the ways of production.

¹ The SCP-NAP was endorsed by the Lebanese Ministry of Environment and Ministry of Industry.

² <https://www.unep.org/circularity>

³ [UNEP sustainable consumption and production policies](#)

SDG 12: Sustainable Consumption and production was adopted by the United Nations in 2015 as part of the 2030 Agenda for Sustainable Development⁴. It aims to ensure sustainable consumption and production patterns by reducing waste and pollution, increasing resource efficiency, and promoting the sustainable use of natural resources. The goal targets to promote responsible and sustainable management of resources and encourage environmentally friendly technologies and practices. The ultimate objective of SDG 12 is to achieve a sustainable future where economic growth, human well-being, and environmental protection are balanced and interdependent.



FIGURE 2 SUSTAINABLE DEVELOPMENT GOALS OF THE 2030 AGENDA

⁴ <https://sdgs.un.org/2030agenda>

2. Plastic Pollution Challenge

Plastic pollution is a global and cross-boundary problem that disrupts natural habitats and crucial ecological processes, reducing the ability of ecosystems to adapt to climate change. Single-use plastics take up a larger part of the plastic pollution problem, with half of all plastic produced being designed to be used just once and then thrown away to persist in nature for 500-1000 years.

Despite that, [only around 10% of the plastic waste generated is recycled](#), while the remaining 90% ends up in landfills, burned or dispersed in the environment, polluting our land and marine ecosystems. The repercussions of plastic pollution extend to the livelihoods, food production capacities, and overall well-being of countless individuals who depend on these ecosystems.

2.1 UNEP's Resolution (5/14) on Ending Plastic Pollution

In March 2022, the fifth resumed session of the United Nations Environment Assembly ([UNEA 5.2](#)), marked the historic adoption of the resolution 'End Plastic Pollution: Towards an Internationally Legally Binding Instrument'. The international legally binding instrument to address plastic pollution will tackle the topic in a comprehensive manner by considering all stages of its lifecycle. The Intergovernmental Negotiating Committee ([INC](#)) is leading negotiations on this agreement, aiming to finalize by the end of 2024. The legally binding instrument bring forward alignment of national efforts with global efforts to prevent plastic waste and promote sustainable plastic use, both at the national and international levels.

2.2 Plastic Pollution in the Context of Lebanon

The strained state of waste management infrastructure in Lebanon, along with the adoption of inadequate and short-term practices, hindered by limited waste segregation practices at the household and business levels present key national challenges that may be turned into opportunities to adopt CE practices that bring about socio-economic and environmental benefits.

According to UNEPs [Waste Management Outlook for West Asia](#) plastics account for an estimated 11.5% of Lebanon's municipal solid waste stream. Few plastic recycling facilities exist in Lebanon and some are not operational due to lack of profitability, which has led to a large export culture whereby, in 2020, exports of plastics reached US\$102.41 million according to the [United Nations COMTRADE database](#).

The outlook further highlights the situation in Lebanon, indicating that as much as 20% of Beirut's municipal waste stream is collected as recyclables by the informal sector, effectively contributing to a form of waste "entering the Circular Economy." While the global plastic crisis is undeniably pressing, Lebanon's experience mirrors that of many nations, where the issue of plastic pollution intersects with the informal labour sector. The informal sector offers livelihoods to many but also contributes to increased waste and pollution due to waste picking from dumpsites, leaving behind waste having a higher food content which exacerbates the environmental impact. Additionally, the informal sector activities may result in spreading of diseases due to the lack of use of personal protective equipment while rummaging through the waste and the sector often employs children in waste picking activities.

For that, achieving a balance between environmental conservation and socio-economic opportunities for local communities is crucial, while addressing plastic pollution as it poses a shared challenge demanding collective action and innovative solutions toward prevention, reduction, reuse and recycling.

3. Nudawwer - Pilot Project

UNEP collaborated with the Lebanese NGO "Nusaned" to implement the pilot project *Nudawwer* in Beirut. *Nudawwer* refers to a circular or continuous movement in Arabic and the root of the word may also be associated with recycling. Throughout the project duration (July 2022 – December 2023), the emphasis is on drawing lessons learned from the testing phase to instil circularity, particularly the concepts of prevention and reduction, rather than just promote recycling practices within the community.

The project is a community-based pilot in the Mar Mikhael - Gemmayze area in Beirut which seeks to address the challenges of reduction and prevention of food waste and packaging waste to divert them from landfills

using concepts of the circular economy. Through awareness raising and capacity building activities, this project is introducing circular elements and sustainable consumption and production patterns into the neighbourhood to induce behavioural change and allow green businesses to thrive. *Nudawwer* addresses primarily SDG 12 (Sustainable Consumption and Production). The results of the project will serve as a foundation and blueprint for replication and scaling up across the country to influence policy action.

Both concepts of CE and SCP are interconnected and introducing such concepts to restaurants' practices, and to the community, will reduce stress on the raw materials being used, diverge plastics and food waste from landfills and allow a healthier environment to flourish. For *Nudawwer*, the aim is to address (1) *User to User (Reuse and Reduce)*, (2) *User to Business (Repair)*, and (3) *Business to Business (Recycle)* components.

By creating a replicable model, *Nudawwer* seeks to promote the adoption of more sustainable practices and policies, with the potential for national impact, leading to a more significant contribution to the global efforts of preventing waste and circularity. This approach will ensure that the project's efforts have a far-reaching impact.

Shifting from a linear economy model to a circular economy model is achieved through “transforming every element of our take-make-waste system: how we manage resources, how we make and use products, and what we do with the materials afterwards”. With this approach, *Nudawwer* aims at achieving its objectives and contributing to the policy making strategies. This model has been created using the “UNEP Building circularity platform⁵” as a reference and exemplifies what *Nudawwer* will be achieving whereby UNEP will be playing an integral role in assisting in dissemination and policy recommendations at the national level.

Mar Mikhael - Gemmayze Neighbourhood

The project leveraged the dynamic restaurant scene in the *Mar Mikhael-Gemmayze* area in Beirut, to test SCP/CE elements that enable the establishment of a customized methodology to inspire circular practices and long-lasting behavioural change to prevent plastic waste pollution.

The neighborhood that the *Nudawwer* project is mainly residential and commercial. This area of Beirut is known as a lively bar and restaurant area, amongst the residential and business buildings. *Mar Mikhael-Gemmayze* are located at the eastern boundary of Beirut in the *Medawar* district which has a total population of 8,112⁶. They lie in a strategic location south of the Beirut port and are considered a main connection from the Beirut central district to the eastern suburb of Beirut.

4. Nudawwer Plastic Circle

The aim of the plastic circle is to understand the consumption and production practices in the neighbourhood and work on ways to reduce and treat non-organic waste and produce and address restaurants as well as other key actors in the neighbourhood, including households, vendors, gyms, and a school. The plastics circle focuses on reducing non-organic waste, particularly plastics, through sorting and recycling. Various stakeholders participate (households, restaurants, vendors, school, gyms), earning points redeemable at local vendors and hence reinvesting proceeds into the local economy.

4.1 Different phases of the Plastic Circle Component

The implementation of the plastic circle component is structured around four phases:

- (i) Undertaking an **in-depth assessment** of the “plastic pollution” challenge at global, regional, and local level:

The project's assessment phase began in the early stages of the project, July 2022 and extended till end of July 2023. The project adopts the waste hierarchy defined in the EU waste framework directive⁷ which aims at preventing and reducing the negative impacts caused by the generation and management of waste and to

⁵ <https://buildingcircularity.org/>

⁶ https://maps.mapaction.org/dataset/fe6fcedd-a678-44e4-831e-84699e1d8a5a/resource/8fa96dd0-b4cf-4709-8ddb-730c9b402d67/download/ma011_beirut_population-300dpi.pdf

⁷ https://ec.europa.eu/environment/green-growth/waste-prevention-and-management/index_en.htm

improve resource efficiency. The assessment phase further allowed the implementing partners to get acquainted with UNEP’s work and good practices on plastics and especially science-based data.

(ii) Develop a detailed **roadmap for implementation**:

Based on the outcomes of the assessment phase, an initial roadmap was developed to guide the project implementation. During the project implementation the roadmap was periodically updated and adjusted to best respond to the specific circumstances and contexts. Showing such flexibility is important to allow the concerned stakeholders to best respond to the needs, challenges, and opportunities.

(iii) **Test / implement** the roadmap:

The core of the pilot phase lies in its **testing and implementation phase** bringing together various participants to implement and trial activities in line with SDG 12, with the goal to showcase the potential for SCP and circular practices within a neighbourhood in Beirut, considering the local context. As part of the project progress monitoring, four categories of assessment surveys were conducted in May 2023 to collect data on the knowledge, attitudes, and behavioural change of Nudawwer’s stakeholders (households, gyms, vendors, and restaurants). Monitoring involves the systematic collection and analysis of data to assess the progress and performance of the project. These surveys are a valuable tool as they directly gather information from the target individuals, allowing for a comprehensive examination and analysis of data.

(iv) **Showcase** insights to inspire replication:

The different phases of the project implementation allowed to gather lessons learned and identify policy recommendations. This phase is key to inspire uptake and replication and allow the project to assure national ownership and sustainability.

The activities that were undertaken during the testing phase of the **circular plastics scheme** are showcased in figure 3.

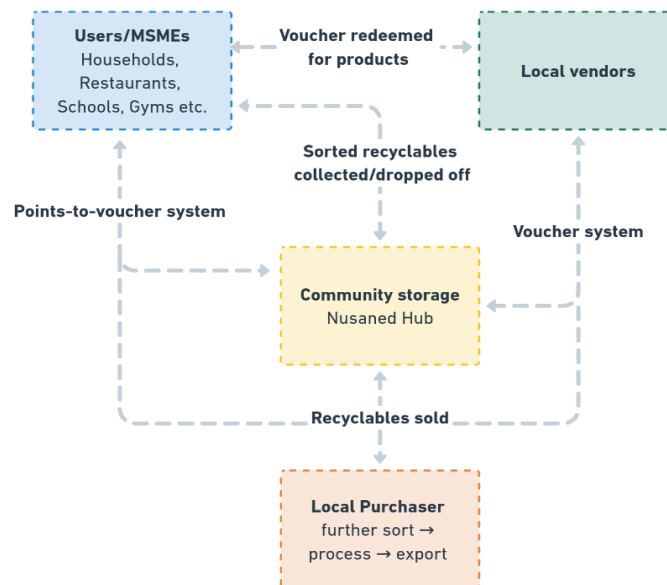


FIGURE PLASTICS CIRCLE ACTIVITIES

4.2 Plastic Circle Good Practices

Nudawwer's model is based on involving several stakeholders in the process of reducing non-organic waste and sorted recyclable materials. The system is designed with an aim to be self-sufficient, local, and environmentally conscious, as all the actors both provide and receive valuable resources, be it recyclables, vouchers, or promotional and educational awareness campaigns.

Nudawwer pilot project has adopted the lean start-up method which begins by “searching” for the business model and adapting the activities to the needs of the beneficiaries through testing, revising, and discarding hypotheses, continuously gathering beneficiaries’ feedback, and rapidly iterating on the process.

Among the good practices from the pilot exercise are:

(i) Conduct weekly walk-through audit

Perform a walk-through audit on a weekly basis to gather data about the operational performance to identify strengths and weaknesses and address the risks that may arise. During the walk-through audit key observations about the operational performance were classified into: (a) general aspects, (b) service delivery by the internal team, (c) service delivery by partners and suppliers, (d) financing, marketing and (d) communications.

(ii) Engage in meetings/interviews with staff and beneficiaries

Besides the weekly walk-through audits, it is advised to also follow-up through meetings and interviews with beneficiaries and partners to allow each side to be on the same level of updated information. A strong interaction and exchange of information and data will allow to investigate areas of operational performance improvement.

(iii) Target multi-stakeholders

It is important to spend time to select active and diverse stakeholders. The stakeholders involved in the testing phase included food service providers (10 eateries/restaurants), retailers (7 Micro, Small, and Medium-sized Enterprises – MSMEs: 4 gyms, 2 markets and 1 spoiler centre (retail store for automotive parts)), households (646 registered as individual users), 1 school and 1 local social enterprise.

(iv) Train and inform involved stakeholders

Selected stakeholders have received awareness training and one-on-one follow-up from the project implementation team. They have further been given access to information and good practices. Depending on the local context, sorting at the source may be a practice that is not widespread which may require additional effort to ensure that proper sorting at the source is being done, as is the case in Lebanon. Awareness raising on the importance of sorting at the source is crucial, with a focus on prevention and reduction at the household level and involving the private sector, as well.

(v) Incentives: points system and data recording

The stakeholder’s engagement in achieving circularity is facilitated through a points-to-voucher system. Throughout the testing phase, the collection, storage and sale of recyclables was managed, reinvesting proceeds into the local economy through the points-to-voucher system. The project records data on the weight and materials collected and calculates the points earned by each user which can be redeemed as vouchers and spent at local vendors. Despite facing some challenges due to a seemingly lack of interest in prevention, whereby several competing initiatives offer cash in exchange for recyclables a functional points-to-voucher system was put in place.

The pilot project also designed a demo app that automates the points-to-voucher system, allows the recording of data on the weight and materials collected, thus calculating the points earned by each user which can be redeemed as vouchers and spent at local vendors.

(vi) Changing behaviours and practices

Tracking behavioural change and changing practices is crucial. A survey conducted in May 2023 with 130 participants revealed that the *Nudawwer* project has had a lasting influence on users' sorting at the source and recycling habits. Users have developed a prevention mindset and demonstrated responsible waste management practices. Many users actively recommend recycling to their neighbours and friends, indicating their dedication to spreading awareness within their social circles. This demonstrates a positive shift towards environmental responsibility and waste reduction.

The *Nudawwer* project's Plastic Circle component demonstrates effective strategies for reducing plastic pollution, engaging local communities, and fostering circular economy practices.

Voucher system:

For every 10 kg of plastics (equivalent to 186 points), users receive food and non-food vouchers that can be redeemed at selected local vendors.

Several models have been put in place to ensure all stakeholders and the community benefit from the project:

Model 1: Vouchers for employees of the participating entity

Model 2: Voucher for the Reclamation worker collecting the recyclables.

Model 3: Donation

Model 4: Vouchers for the participants themselves

Model 5: Half the value of the voucher is put up for donation and half is given back to the users

Since the beginning of the demonstration project, a total of 506 vouchers have been redeemed, corresponding to 25,650,000 Lebanese Pounds (LBP).

The following amounts of recyclables were collected from the area between June 2022 and June 2023:

7 tonnes of plastics

3.2 tonnes of glass

186.5 kg of cardboard

167.3 kg of tin

80.5 kg of aluminium

5. Plastics Circle Lessons Learned

- Given Lebanon's multi-faceted crises, the work of grassroots organizations is critical in advancing environmental sustainability through sustainable consumption and production and moving towards a circular economy – not limiting activities to solely recycling – within the plastics sector.
- Awareness raising about the importance of sorting at the source, waste prevention, reduction, and recycling, while offering vouchers, giveaways, special offers during holidays, and buckets to contributing residential buildings, incentivize the participation of residents, especially vulnerable communities, and address their concerns as an initial step for behavioural change.
- The plastics circle may provide incentive for recycling facilities to re-open or invest in recycling infrastructure in Lebanon.
- The collected recyclable plastics may be used as inputs for entrepreneurs using plastics/recycled plastics as materials.
- The adoption of the plastic circle model in Lebanon's urban areas can lead to the creation of new employment opportunities.
- The points-to-voucher system to be redeemed at local MSMEs can be an effective way to encourage participation and engagement in a community CE program to encourage prevention, reduction, reuse and recycling while supporting the local economy. For that, the plastics circle may be expanded to encompass other recyclables beyond plastics. While the focus of the plastics circle testing phase was on reducing plastic pollution, due to the national context, it has been expanded to include other types of non-organic recyclables, such as glass, cardboard, tin, and aluminium.
- Plastic waste prevention, reuse and recycling is an effective way to introduce SCP/CE elements to the private sector, with limited changes to their operations.
- The adoption of a Circular Economy model in Lebanon's urban regions holds the potential for transformative changes in the plastic economy, offering several socio-economic and environmental benefits to the country.
- CE promotes material reuse, repair, and recycling, enhancing resource efficiency, reducing manufacturing costs, and the demand for new raw materials. This approach also creates new employment opportunities, reduces waste sent to landfills and incinerators, aligns with global environmental goals.
- CE enhances access to finance for urban businesses, making them more attractive to investors and lenders. It encourages innovation and the development of sustainable technologies, ensuring economic growth and competitiveness. By emphasizing local production and consumption, CE strengthens economic self-sufficiency in urban areas, reducing dependence on external resources and enhancing resilience in the face of global economic fluctuations.
- Competition with the informal sector may be challenging since it may adapt faster to specific market conditions and operational costs are lower. Finding mechanisms to dialogue with the informal sector is of utmost importance.
- Enabling regulatory frameworks need to be put in place to ensure lasting impact (e.g., through Extended Producer Responsibility (EPR) schemes) to ensure financial sustainability. Furthermore, the role of the public authority as controller would be essential to mitigate market shocks in the supply chains and ensure transparency across the value chain.