



SwitchMed II in Lebanon

Demonstrating Sustainable Consumption and
Production and Circularity Practices



نُدَّوَّر
nudawwer

Nudawwer Project Summary Report

Project Implemented by: 

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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. In order 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.

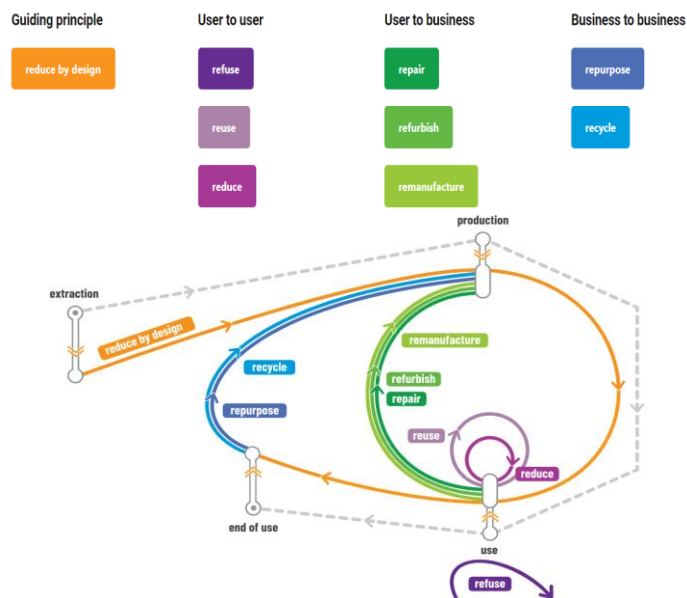


FIGURE 1 CIRCULARITY BUILDS UPON VALUE RETENTION LOOPS, AS SHOWN ON THE UNEP CIRCULARITY APPROACH

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

² <https://www.unep.org/circularity>

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.

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

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

⁴ <https://sdgs.un.org/2030agenda>

2. *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 food waste and 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.

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

3. Nudawwer Project Components

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, compost or promotional and educational awareness campaigns. The project has 3 components:

- Plastics Circle
- Food Circle
- Green and Circular Restaurants

Plastics Circle: Reducing non-organic waste, particularly plastics, through sorting at the source and recycling to earn points redeemable at local vendors while incentivizing sustainable behaviours and waste reduction to earn points converted to vouchers which are redeemable at local vendors.

Food Circle: Preventing and reducing food waste, while creating a closed-loop system. Restaurants received guidance on waste segregation, monitoring food waste reduction through meal tracking and waste composition analyses. The food waste is collected and processed to produce organic compost that is tested to ensure quality and used in-house or shared with the restaurants' local farmers.

Green and Circular Restaurants are eateries that adopt sustainable practices (based on SCP and CE) in their operations. These restaurants strive to minimize their ecological footprint and promote sustainable food production and consumption. The term "green" signifies their commitment to environmental responsibility, while "circular" emphasizes the concept of a circular economy, where resources are used efficiently, waste is minimized, and materials are recycled or repurposed. In the context of the Nudawwer pilot project, the restaurants are those actively implementing sustainable and circular practices to reduce their environmental impact.

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.

The implementation of each component is similarly structured around four phases:

- (i) Undertaking an **in-depth assessment** of the "plastic pollution" challenge at global, regional, and local level
- (ii) Develop a detailed **roadmap for implementation**
- (iii) **Test / implement** the roadmap
- (iv) **Showcase** insights to inspire replication

3.1 Nudawwer Plastics 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.

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

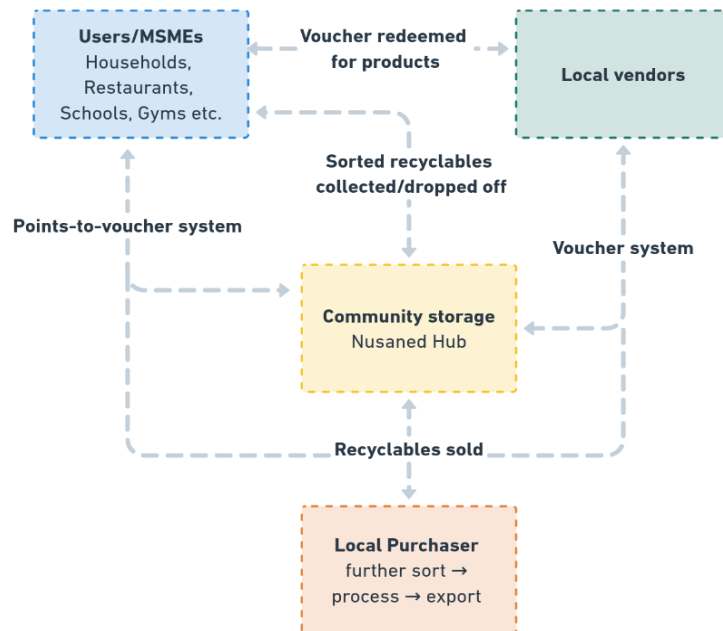


FIGURE 3 PLASTICS CIRCLE ACTIVITIES

Among the good practices from circular plastics scheme:

- (i) **Conduct weekly walk-through audit**
- (ii) **Engage in meetings/interviews with staff and beneficiaries**
- (iii) **Target multi-stakeholders**
- (iv) **Train and inform involved stakeholders.**
- (v) **Incentives: points system and data recording**
- (vi) **Changing behaviours and practices**

Points-to-Voucher system:

For every 10 kg of plastics (equivalent to 186 points, based on daily rate/Ton), 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

It's important to note that the value of these vouchers was affected by the significant devaluation of the national currency during the project testing phase, underscoring the economic challenges faced.

3.2 Nudawwer Food Circle

For the Food Circle Component, Nudawwer's model is a circular system that involves 10 restaurants⁷, in Mar Mikhael-Gemmayze in preventing and reducing food waste. Till end of June 2023, the system put in place diverted 20,564 kilograms of organic waste from landfill. The food waste was used to produce 550 kilograms of compost, which will be distributed among the restaurants, with a portion aiming to utilise the compost in-house and the remainder shared with their local farmers.

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 compost, vouchers, or promotional and educational awareness campaigns.

The activities that were undertaken during the testing phase of the **food circle** are showcased in figure 4.

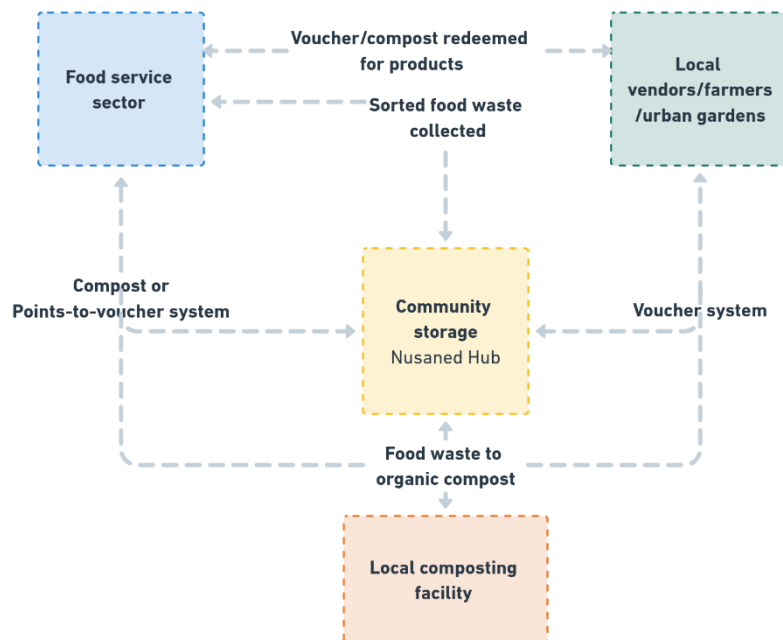


FIGURE 4 FOOD CIRCLE ACTIVITIES

⁷ Dar Beirut, Green Junkie, Baron, Le Petit Gris, Mayrig, Stairway, Starbucks, Kaake square, Salad Bar and SIP

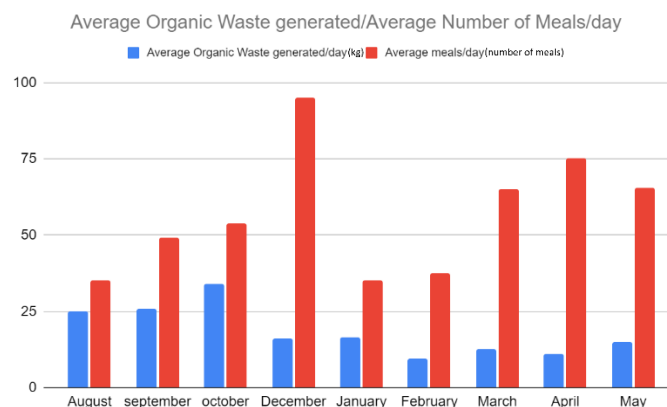
Additional good practices from the food circle exercise are:

- (vii) **Implement regular waste composition analysis**
- (viii) **Leverage meal tracking for continuous improvement**
- (ix) **Ensure compost quality control**

Waste Composition Analysis allows for a further analysis of the mixed waste stream to identify materials that should not reach the Municipal Solid Waste (MSW). The materials found are sorted into different categories, weighed and recorded to provide recommendations based on the findings which may contribute to identifying more efficient sorting methodologies and altering a recipe by decreasing the usage of an ingredient that gets thrown away.

Meal Tracking Analysis compares meals prepared to the waste generated during their preparation. The waste factor shows statistically how much waste was created with every meal produced. With the numbers of prepared dishes, the sum of each day is graphed as “average meals/day” compared to the weight of waste produced each day, which is graphed as “average waste/day”. These values are used to find the waste factor: the weight of waste produced divided by the number of meals produced.

Example of Meal Tracking



The amount of waste produced per meal in August 2022: 25 kg of waste/ 35 meals = **0.71 kg** of waste/meal compared to the amount produced in **April 2023:** 11 kg of waste/ 75 meals = 0.15 kg of waste/ meal (**78% decrease from August**).

3.3 Nudawwer Green and Circular Restaurants

The restaurant industry plays a pivotal role in the global pursuit of sustainability, with a unique capacity to drive awareness and foster a sense of community engagement. Within this broader responsibility, restaurants hold a critical position in addressing the issues of food waste and packaging waste, particularly plastics.

The industry can actively participate in reducing its environmental footprint by advocating for conscious consumption, responsible waste management practices, including waste segregation at the source, reuse and recycling practices to address packaging and food waste while emphasizing sustainable choices and promoting the circular use of materials.

It is important to note that [UNEP's Food Waste Index](#) highlights the challenge of effectively measuring food waste generation in the food service sector. This is not only due to the sector's diversity, encompassing restaurants, hotels and canteens, but also due to entities within this sector often resisting waste audits, which complicates efforts to gather the needed data. Additionally, the absence of robust national data on metrics such as the number of operating restaurants and the volume of meals consumed outside homes increases the challenge of realizing a national food waste estimate for the sector.

The business case of green and circular restaurants includes the effective management of two key and high impact sectors: plastics and food, which have far-reaching environmental implications and play a central role in advancing the broader goals of sustainability and responsible consumption and production.

The project engaged 10 restaurants⁸ to address packaging and food waste throughout the testing phase, they were encouraged to adopt sustainable practices, taking part in the **Plastics Circle** and **Food Circle** strategies to encourage active participation and positive change in the restaurant industry to reduce environmental impact and give back socio-economic returns.

During one-to-one visits, restaurants received valuable guidance and were provided with additional resources to encourage the adoption of environmentally friendly practices.

Through active participation in the **Plastics and Food Circles**, restaurants enhance sustainability and contribute to creating a more environmentally responsible food service sector.

Engaged restaurants:

The participating restaurants varied from dine-in only to take-out only entities serving various cuisines. This diversity emphasised the applicability and pertinence of sustainable practices in the food service sector, regardless of the dining format. The pilot project welcomed the inclusion of both traditional and contemporary culinary experiences, underscoring the importance of embracing sustainable principles throughout the entire restaurant industry.

Actions and commitments that were presented to the engaged stakeholders to support their switch to more circular practices on plastic and food waste are:

- Preventing and reducing food waste
- Sorting waste at the source (packaging waste and food waste)
- Meal tracking to monitor waste generation per meal
- Waste composition analysis to gain insights into discarded materials
- Composting: turning food waste into nutrient-rich compost
- Minimizing packaging waste
- Tracking energy and water consumption
- Repairing/repurposing items
- Spreading awareness on environmental issues

⁸ Dar Beirut, Green Junkie, Baron, Le Petit Gris, Mayrig, Stairway, Starbucks, Kaake square, Salad Bar and SIP