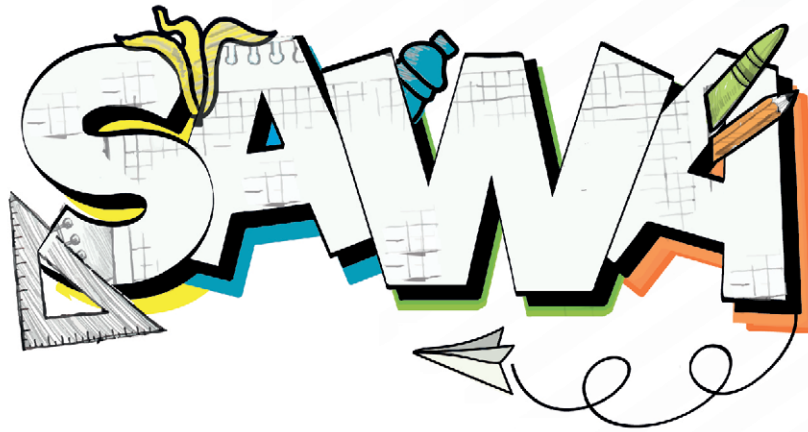




World Health
Organization
Lebanon



Nature Conservation Center | NCC
مركز حماية الطبيعة



SOLID-WASTE AND WATER-QUALITY ACTION PROGRAM FOR SCHOOLS

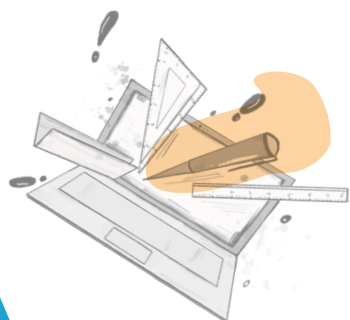


Dr. Iman Shankiti

World Health Organization
Representative in Lebanon

The World Health Organization is pleased to support the American University of Beirut Nature Conservation Center program in the solid-waste and water-quality action (SAWA) program which means together in Arabic. This project will enable the creation of a culture of sustainability within Riad El Solh High School in Beirut and Ebba Public School in the south of Lebanon and will help students to act as agents of change in their local communities, influencing and protecting students' health through improving the solid waste management and ensuring water safety in both schools.

This program is considered a pilot with the aim of applying it in other schools interested in implementing such activities.



Dr. Najat A. Saliba

Founding member of
AUB Nature Conservation
Center

Professor of Chemistry
Faculty of Arts and
Sciences
American University of
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Most university rankings have included the "Green" quality into their key indicators. Universities all around the world brag about their green and sustainable projects and programs. Such initiatives have become a way of life and an integral part of education. With the World Health Organization (WHO) and the Environment Academy (EA), under the AUB-Nature Conservation Center (AUB-NCC), we worked hand-in-hand to develop the interactive SAWA program to be easily integrated and managed by school teachers of all specialties. Prepared in six modules to challenge and enable school students at various levels, SAWA's interactive materials, games, and competitions make it a fun and transformative process for students, teachers, and schools interested in improving health and sustainability.



WHAT IS THE SAWA PROGRAM?

The SAWA program for schools is an applied education environmental program that focuses on improving solid waste management (SWM) and water quality in schools. The program has been designed following the ISO 14001: 2015 plan-do-check-act model for continual improvement (CI) and based on the WHO SWM and water-quality guidelines. SAWA presents viable solutions to the waste management problem while addressing the needed access to potable water in schools. SAWA's aim is to design an experimental environmental education and action program that is fun for students and easy to apply for school staff.



WHY IS THE SAWA PROGRAM IMPORTANT?



Raises awareness on waste reduction and recycling and their associated health benefits



Improves the school infrastructure to provide students with safe drinking water



Empowers students to act as agents of change in their respective communities

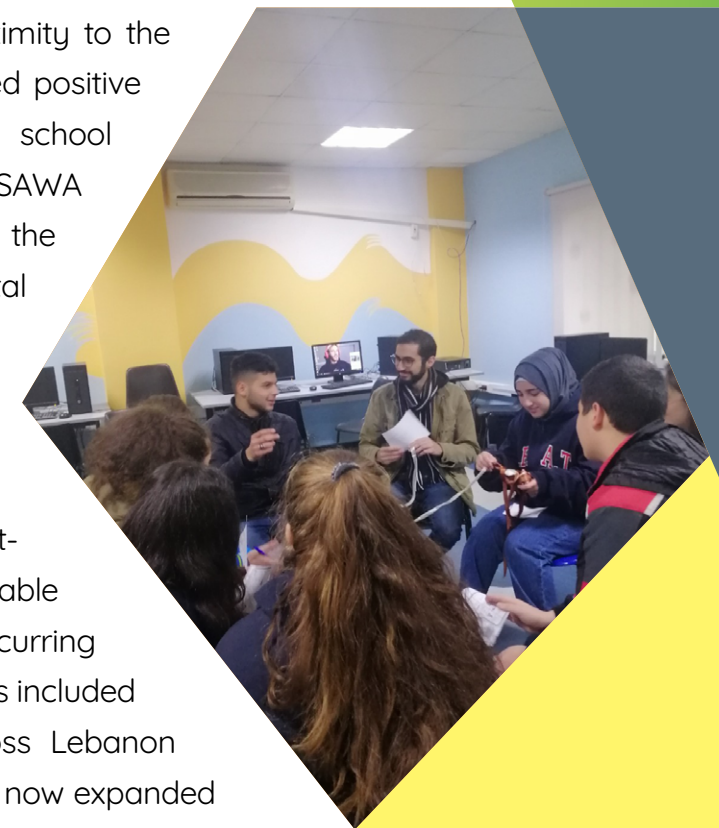


Enables the next generation to become environmental leaders



SAWA PAST EXPERIENCE

The SAWA program was initiated in 2018 with a specific focus on addressing the ongoing solid waste management crisis in Lebanon. In its first version, SAWA was tested with three public schools in close proximity to the Naameh Landfill. Following the reported positive experience of students, teachers, and school administrators, AUB-NCC expanded SAWA in the belief that educated youth at the front lines of Lebanon's environmental challenges have a great capacity and willingness to affect change at multiple levels. The program initially focused on solid waste management with waste reduction and diversion at-the-source acting as the basis for a viable and cost-effective solution to globally occurring SWM crises. Since 2018, the program has included nine public and private schools across Lebanon impacting over 5,000 students and has now expanded to include water quality issues.



SAWA FRAMEWORK

START

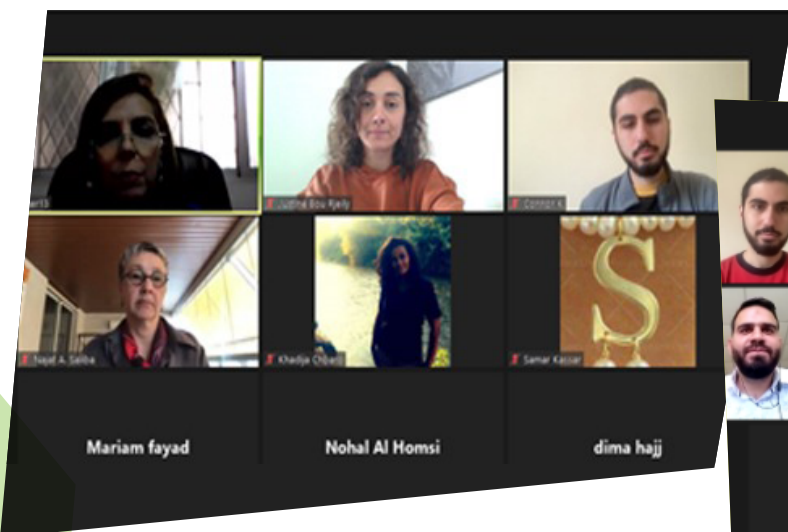
INCEPTION

Introductory meeting with the green teams which includes school teachers and administration to introduce the SAWA program.

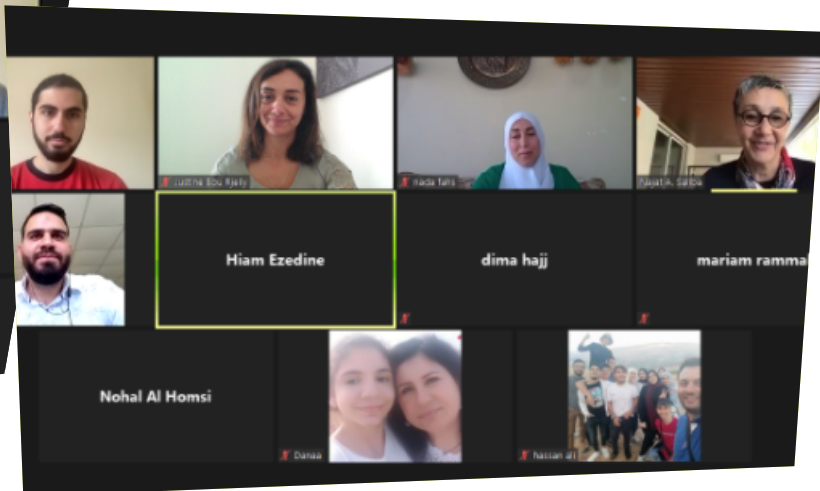
GREEN TEAM WORKSHOPS

Co-design intervention strategy through participatory workshops with school stakeholders.

Riad el Solh green team workshop



Ebba green team workshop



ACT

SCHOOL INFRASTRUCTURE

- ▶ Check and fix the plumbing of potable water in the school, if needed
- ▶ Replace water faucets, if needed
- ▶ Install potable water coolers
- ▶ Distribute reusable water bottles and lunch boxes to reduce consumption of single use plastic



SOLID WASTE AWARENESS PROGRAM

Six applied education modules are co-developed and implemented with four school grade cycles (each cycle is made up of a group of grade levels with students age 6-18 in accordance with the school's structure).

WATCH

MEASURE IMPACT AND FOLLOW UP THROUGH:

Assessment of Completion: A scoring system is used to assess the level of student participation in the six modules, including the upcycling competition.

Focus Group Discussion: Conducted before and after with the green team to evaluate students' and teachers' level of engagement.

Sawa Quiz: Based on the content of the awareness material before and after the program to evaluate knowledge improvement and to a lesser extent changes in attitude.

What's in my trash?: The at-home waste characterization activity was developed to measure students' level of waste reduction before and after the solid waste awareness program and identify common items in the recycling, organic, and/or landfill streams.

ACCOMPLISHMENTS

ACCOMPLISHMENTS AND IMPROVEMENT MEASURES:

Hold a digital ceremony at the end of the project with the school teachers and administration, where students will be given a digital certificate of participation.

Final meetings with the green teams to celebrate and discuss future improvement and sustainability of the program.



SAWA MODULES

- Module 1
- SAWA Introduction
- Module 2
- Waste Management in Lebanon
- Health Impact of Waste Mismanagement
- Module 3
- Waste Characterization
- Recyclable Waste

► Organic Waste

► Landfill Waste
- Sorting Process
- Module 4
- 3 R's – Reduce, Reuse, Recycle
- Module 5
- Organic Waste
- Module 6
- Upcycling Competition

AWARENESS MATERIALS

- Videos
- Infographics
- Quizzes
- Crossword puzzles
- Presentation
- Activities

Health Impacts of Solid Waste Mismanagement

Improper disposal and management of hazardous solid waste leads to air, soil and water pollution which can have negative impacts on human health and can increase the risk of the following:

Long term

- Cancers

- Birth defects

- Heart Diseases

- Respiratory Diseases

Short term

- Stress

- Annoyance

- Skin Diseases

- Bacterial Infections

TIPS:

Avoid exposure to open dumping and open burning of solid waste.

Avoid exposure to hazardous waste such as medical, industrial and agricultural waste.

Make sure your waste is properly disposed to keep the environment safe.

World Health Organization Lebanon

AUB Beirut Conservation Center - MCC Beirut Lebanon

OPEN BURNING OF SOLID WASTE

is the practice of burning trash and allowing the smoke to be released directly into the atmosphere

Burning waste releases toxic gases into the air

Burning our trash makes it hard to breathe

The toxic particles then fall back to the ground

Contaminating water and soil sources

FACTS

Open burning is a common practice in Lebanon.

150 municipal dumps are burned on a weekly basis

Burning waste also releases toxic particles and greenhouse gases contributing to global warming

World Health Organization Lebanon

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PLASTIC POLLUTION

IT IS TIME TO TAKE ACTION!

How long does it take for your plastic trash to break down in the ocean?

Plastic bag 20 years

Coffee cup 30 years

Plastic straw 200 years

Food plastic trays 400 years

Plastic water bottle 450 years

Coffee pot 500 years

Plastic cup 450 years

Disposable diaper 500 years

Plastic toothbrush 500 years

TIPS:

STOP

Wear yourself off disposable plastics

Stop buying single use plastic bottles

Stop using plastic bags

Purchase recyclable / secondhand items

Buy in bulk

Say NO to Plastic

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RIAD EL SOLH

PUBLIC HIGH SCHOOL

LOCAL ISSUE

Amidst the economic crisis and refugee influx, public schools such as Riad el Solh have opened their arms to a tremendous number of new students. With twice the number of students, the school subsequently experienced a surge in single use plastic and was facing difficulties maintaining its environmental citizenship program (Ecolabel in collaboration with the French Institute that aims to reduce the plastic use).

Collaborator



Ministry of Education
and Higher Education

Partner



ENVIRONMENT
ACADEMY

Why the team took action

The team will not let the many crises that they are living through in Lebanon keep them from doing their part in raising the next generation of responsible citizens who understand the importance of environmental stewardship.

Major issues behind joining

- The limitations of digital learning due to the Covid-19 pandemic
- Lack of resources to maintain and expand the environmental citizenship program
- The increase in students from 250 to 550 in a short period of time
- The pressures that the current situation in Lebanon places on the morale of students



GROWTH PLAN

The SAWA Program, which was implemented in Riad El Solh Public High School, will become a model for all other public schools in Lebanon to improve the environment and school health.

SOLUTION ACHIEVED

- Secured safe water coolers to reduce the consumption of single use plastic bottles
- Replaced twenty corroded water faucets in the school bathrooms
- Provided all students with reusable water bottles and lunch boxes to enable reduction in single use plastic consumption
- Actively conducting a digital / online education and action program to improve solid waste management at homes and schools using engaging games and awareness materials

1,100
reusable water bottles
and lunch boxes

1
model
solid waste
awareness
school program

550
students

6
safe
water
coolers

“The most important part of this project is that we are able to take these lessons home and influence our surrounding community. For example, in my home we reduced a lot of our single use plastic and we started buying alternative items that can be reused and last longer.”

- Student





EBBA

OFFICIAL SCHOOL

LOCAL ISSUE

- The solid waste sorting plant was closed in Nabatieh (Al-Kafour) in 2016 and each village began open dumping their solid waste
- No prior exposure to proper waste management, waste reduction, or recycling activities in the community
- Despite its capacity to introduce improved solid waste management to the community, the Ebba Official School faces a lack of funding and an increase in the number of registered students
- Providing quality education is particularly difficult during school closure amidst the COVID-19 pandemic and economic troubles from Lebanon's financial crisis

Collaborator



Ministry of Education
and Higher Education

Partner



ENVIRONMENT
ACADEMY

“We had the good fortune of being approached by the Ebba community team to do this solid waste management and water quality improvement project which gives us a huge opportunity to lift the spirits of our students during these difficult times and help create the next generation of environmental citizens for our village and country”

- School Principal



Why the team took action

The team wanted to grow the impact of the Youth Group in their village and engage their community in creating real action on the social and environmental issues that they live through.

How the team chose to act

- There was a major lack of knowledge in the community on the impacts of solid waste dumping and open burning without resources to address the issue at a municipal level
- The team decided to introduce the community to improved solid waste actions in Ebba Official School
- The team realized that the youth have the ability to champion environmental citizenship starting with solid waste in their school and later with the broader community

GROWTH PLAN

- Develop a monitoring and evaluation program to ensure continuity in solid waste improvements
- Collaborate with the municipality in taking the lessons from the SAWA program and applying them to the wider community
- Identify a local engineering firm who is able to design and install a kindergarten classroom and playground at the school

SOLUTION ACHIEVED

- Secured safe water coolers to reduce the consumption of single use plastic bottles
- Replaced nine corroded water faucets in school bathrooms
- Provided all students with reusable water bottles and lunch boxes to enable reduction in single use plastic consumption
- Actively conducting a digital / online education and action program to improve solid waste management at homes and schools using engaging games

900
reusable water bottles
and lunch boxes

1
model
solid waste
awareness
school program

450
students

6
safe
water
coolers





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