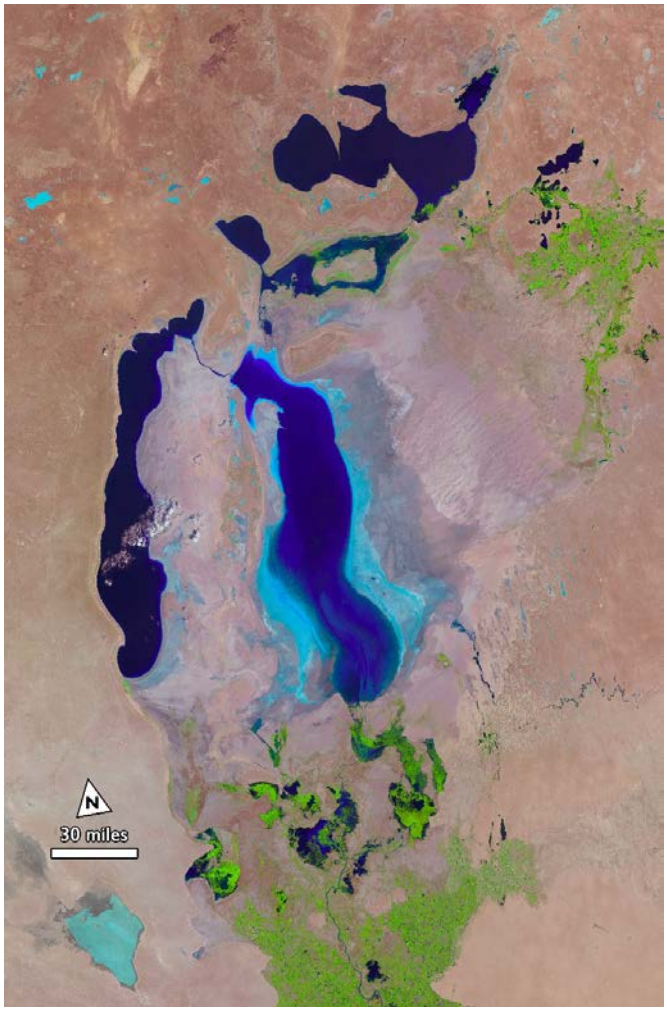
WORLD ARAL REGION
CHARITY, INC.



INVESTING IN SIMPLE AND SUSTAINABLE SOLUTIONS TO THE ARAL WATER CRISIS

KHOREZM REGION, UZBEKISTAN

The World Aral Region Charity (WARC) | Report | 2018-2019

Executive Summary

Overview

The World Aral Region Charity, Ecological Movement of Uzbekistan, and "Nur Va Xayot" Center aim to invest in sustainable solutions for the ecological recovery of Khorezm Region in select farms and schools.

Over March 2018 - April 2019 we installed 3 drip-line systems on partnering farms in the Urgench and Bogat regions to provide water efficiency, and 3 RO filters in schools in the Shovot, Yangiarik and Bogat regions, to provide clean water for children and reduce the incidence of childhood anemia. The educational program in Khorezm region schools was organized with participation of students from the volunteer movement "Time of Wonders". The program encouraged rural school children and leading students from Tashkent to consider how they can play a role in advocating for the environment of the Aral Region.

4 schools
3 farms

1957 students
65 farmers
4500 adults

78 100 liters
Water Filtered
920 000 liters
Water Saved

http://aralregioncharity.org

Deliverables

3 Phases: October (Initial), March (Scale-Up), April (Evaluation)
3 Drip Line Systems and Training: Bogot and Urgench, Khorezm
3 Reverse Osmosis Filters: Bogot, Shovot and Yangiarik, Khorezm
4 Educational Programs: Bogot, Shovot, Yangiarik and Muynak
9 University Students: Tashkent, Urgench, Nukus, New York, Albany
100 High School Students: Bogot, Shovot, Yangiarik and Muynak Schools
Educational supplies: Bogot, Shovot, Yangiarik and Muynak Schools
160 Fruit Trees Planted: Bogot, Shovot and Yangiarik, Khorezm
2000 poplar Trees Planted: Muynak, Karakalpakstan
60kg of Saxaul Seeds Planted: Muynak, Karakalpakstan
Diapers and Toys: Muynak Nursery, Karakalpakstan

Partners

Ecological Movement of Uzbekistan- Khorezm and Bukhara Branches
Center "Nur va Xayot"
Non-profit "Imkoniyati Cheklangan Yoshlar va Bolalar Markazi"
"Time of Wonders" Volunteer Movement
OOO "Suntex Prom"
PK "Debyut"

Long-term outcome

These projects served as a sustainable, long-term investment in a region heavily hit by the by the Aral Crisis, in which most of its water was drained and made undrinkable.

Drip-line irrigation facilitates long-term water efficiency, therefore helping reduce the continual water depletion that led to the crisis. Reverse osmosis (RO) filters at schools remove salt from salinized groundwater, preventing anemia, which is prevalent among rural children. The educational program empowers both rural and urban youth to unify in advocacy for their country's ecological well-being, so that they continue our work past the conclusion of this project.

Implementation

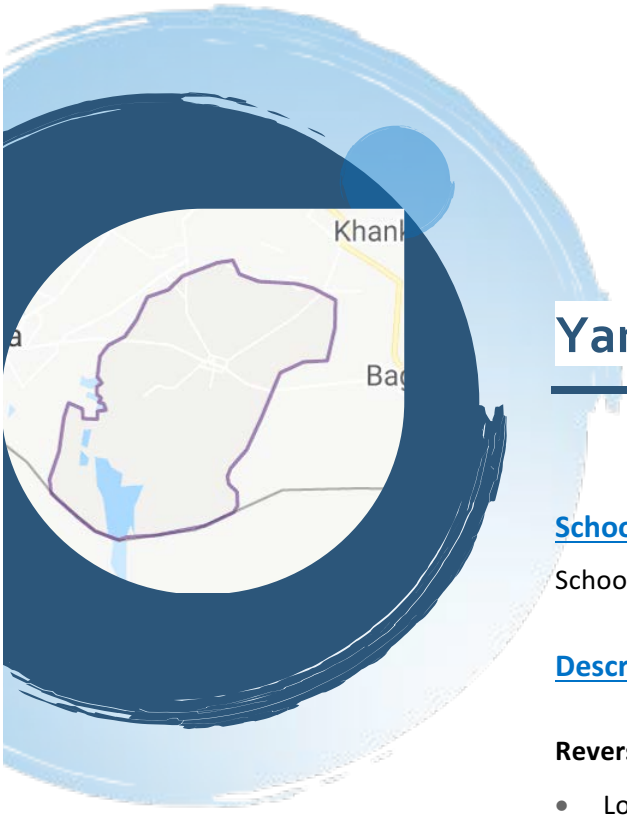
The project was implemented in 3 phases: October 2018, March 2019, and April 2019. Due to difficulties accessing 3-phase electricity and tapping groundwater in time for our project, School #38 (Buyrachi) was switched to School #5 (Katkala) in Bogot, and School #7 (Chikirchi) was switched to School #23 (Gulbog) in Yangiarik. To assure the best possible installations, WARC decided to purchase drip-line services from a leading Tashkent-based company, "Agrodrip," also known as "Debyut" (www.poliv.uz) and RO filters from the Urgench branch of "Suntex Prom". Both companies provide high quality equipment manufactured abroad. Projected costs in travel and reverse osmosis filters were reduced, given assistance from our project partner "Nur va Xayot" and the aforementioned changes in equipment providers. For this reason, additional funds were devoted to donations of educational supplies, fruit trees, saxaul trees and hospital supplies at visited sites.

Evaluation and Oversight

Reverse osmosis (RO) filters were installed in a facility within 50 meters of the school at each filtration site. In consultation with the *mahalla* (local government), WARC selected and trained an unemployed individual to manage the RO filters. The following payment plan was developed to encourage sustainability: 2 liters/day of free water to schoolchildren and low-income families; 50 Uzbek so'm for the general population. A list of those assured free water is kept at each site. WARC entrusted the filters to "Nur va Xayot" in a one-year lease with no fees. It monitors the upkeep of filters; payment of electricity, wages and rent; and water quality. The government sanitation services also conduct inspections.

An ex-post evaluation was conducted by WARC in March and April 2019. WARC continually communicates with Eco-Movement and "Nur va

Xayot" and *mahallas* in Khorezm every month after March 2019 for two years to monitor the upkeep of our installations and evaluate long-term effects.



Yangiaryk District

School Name

School #23, Gulbog, Yangiarik Region, Khorezm Oblast

Description

Reverse osmosis filters impact:

- Low income families and school students got water for free (2 liters/day), population had to pay 50 so'm per liter.
  [Note: The so'm is the currency of Uzbekistan]
- A 500L/h RO filter was purchased from OOO "Suntex Prom"- Tashkent, Yashnobod Region, Alimkent Street 1, House 13/1
- 1 M^3/h single grade filter, using the ESPA-4040 system, Korean membrane, assembled in Uzbekistan

Number of participants

483 students (207 boys / 276 girls)

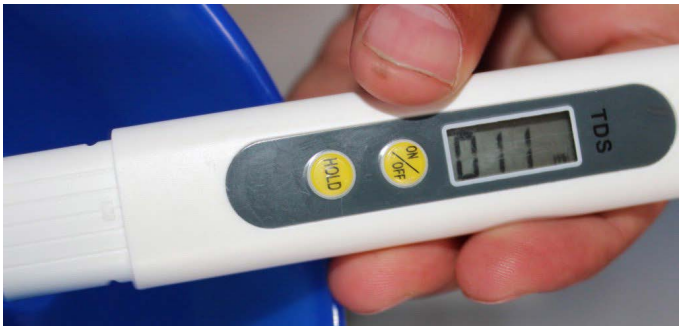
Filter Impact (March-May 2019)

Flow Rate: 500 l/h
Salinity Content: 11 mg/L
Usage Rate: 272 L/day
Total 16300 liters
1. School students = 6980 liters
2. Low-income families = 1500 liters
3. Population = 7820 liters

Portfolio

School #23, Yangiarik Region

RO filters Installation in School #23, Gulbog, Yangiarik Region, Khorezm Oblast, to provide clean water for children and reduce the incidence of childhood anemia.



Before

After

Shavat (Shovot) District

School Name

School #5, Katkala, Shovot Region, Khorezm Oblast
Director- U. Huzhanezov

Reverse osmosis filters impact:

- Low income families and school students got water for free, population had to pay 50 so'm per liter.
  [Note: The so'm is the currency of Uzbekistan in Central Asia]
- A 500L/h RO filter was purchased from OOO "Suntex Prom"- Tashkent, Yashnobod Region, Alimkent Street 1, House 13/1
- 1 M^3/h single grade filter, using the ESPA-4040 system, Korean membrane, assembled in Uzbekistan

Number of participants

917 students (610 boys / 305 girls)

Filter Impact (March-May 2019)

Flow Rate: 500 l/h
Salinity Content: 24 mg/L
Usage Rate: 447 L/day
Total 26800 liters
1. School students = 12800 liters
2. Low-income families = 1500 liters
3. Population = 12500 liters

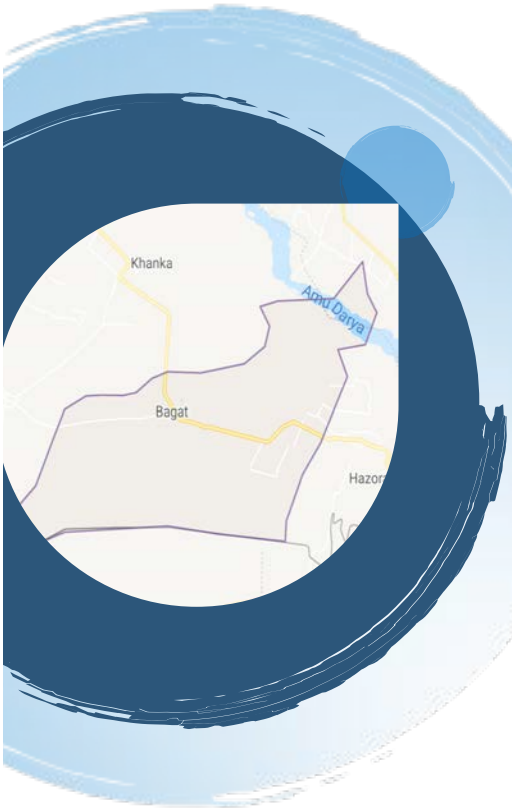
Portfolio

School #5, Shovot Region

RO filters Installation in School #5, Katkala, Shovot Region, Khorezm Oblast, to provide clean water for children and reduce the incidence of childhood anemia.

Before

After



Bagat (Bogʻot) District

School Name

School #33, Madaniyat, Bogot Region, Khorezm Oblast
Director- M. Atadzhanov

Description

Reverse osmosis filters impact:

- Low income families and school students got water for free (2 liters/day), population had to pay 50 so'm per liter.
  [Note: The so'm is the currency of Uzbekistan]
- A 500L/h RO filter was purchased from OOO "Suntex Prom"- Tashkent, Yashnobod Region, Alimkent Street 1, House 13/1
- 1 M^3/h single grade filter, using the ESPA-4040 system, Korean membrane, assembled in Uzbekistan

Number of participants

557 students (299 boys / 258 girls)

Filter Impact (March-May 2019)

Flow Rate: 500 l/h
Salinity Content: 17 mg/L
Usage Rate: 583 L/day
Total 35,000 liters
1. School students = 11500 liters
2. Low-income families = 2500 liters
3. Population =14500 liters

Portfolio

School #33, Bogot Region

RO filters Installation in School #33, Madaniyat, Bogot Region, to provide clean water for children and reduce the incidence of childhood anemia.

Before

After

Gulistan Massif, Urgench Region, Khorezm Oblast

Farm Name

"Patriot Galla" Farm, Head- Sh. Hadzhimuratov

Drip-line irrigation impact:

- System provided, planned, and installed by PK "Debyut"- Tashkent, Bunedkor prospect 29, www.poliv.uz
- 2,525 meters of drip-line and mainline tubing, covering 1,250 sq. m. of irrigated area for low-water-use crop cultivation (tomatoes, cucumbers, carrots, lettuce, melon, etc.) was installed. A training session was led with local farmers on drip-line benefits and maintenance.

Number of participants

30 farmers (17 men/13 women)

Filter Impact (October 2018-May 2019)

Flow Rate: 8.2 L/h
Water Saved: 360,000 L
Area: 1250 m^2

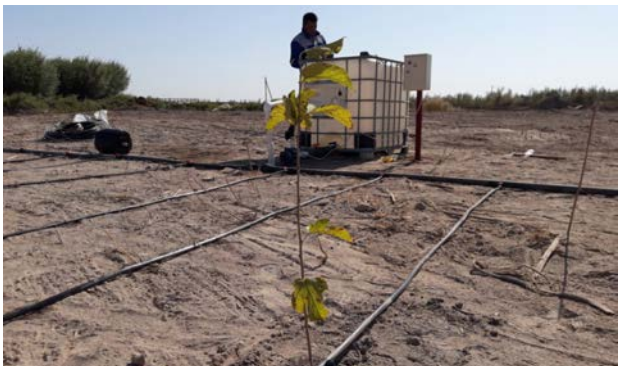
Portfolio

"Patriot Galla" Farm, Head- Sh. Hadzhimuratov

Drip line installation to promote sustainable, water efficient farming.

Before

After



Madaniyat, Bogot Region, Khorezm Oblast

Farm Name

"Rahim Polvon Azamzhon" Farm, Head- Sh. Kurbanbaev

Drip-line irrigation impact:

- System provided, planned, and installed by PK "Debyut"- Tashkent, Bunedkor prospect 29, www.poliv.uz
- 2,525 meters of drip-line and mainline tubing, covering 1,250 sq. m. of irrigated area for low-water-use crop cultivation (tomatoes, cucumbers, carrots, lettuce, melon, etc.) was installed. A training session was led with local farmers on drip-line benefits and maintenance.

Number of participants

23 farmers (15 men/8 women)

Filter Impact (October 2018-May 2019)

Flow Rate: 8.2 L/h
Water Saved: 270,000 L
Area: 1250 m^2

Portfolio

"Rahim Polvon Azamzhon" Farm, Head- Sh. Kurbanbaev

Drip line installation to promote sustainable, water efficient farming.

Before

After

Madaniyat, Bogot Region, Khorezm Oblast

Farm Name

"Marsel-Bek" Farm, Head- M. Kuryazov

Drip-line irrigation impact:

- System provided, planned, and installed by PK "Debyut"- Tashkent, Bunedkor prospect 29, www.poliv.uz
- 2,525 meters of drip-line and mainline tubing, covering 1,250 sq. m. of irrigated area for low-water-use crop cultivation (tomatoes, cucumbers, carrots, lettuce, melon, etc.) was installed. A training session was led with local farmers on drip-line benefits and maintenance.

Number of participants

22 farmers (12 men/10 women)

Filter Impact (October 2018-May 2019)

Flow Rate: 8.2 L/h
Area: 1250 m^2
Water Saved: 290,000 L

Portfolio

“Marsel-Bek” Farm, Head- M. Kuryazov

Drip line installation to promote sustainable, water efficient farming.

Before

After

ice Program and Other Activities

3/16-19/2019
Bogot School #3, 25 students
Shovot School # 5, 25 students
Yangiarik School #7, 25 students

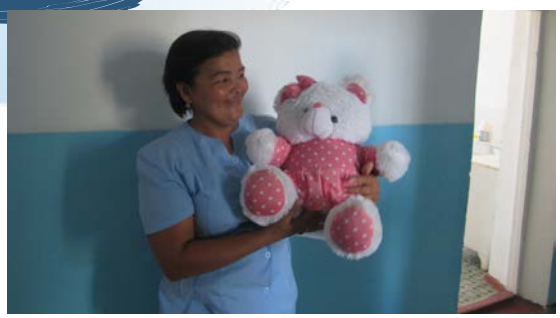
3/20/2019
Muynak School #2, 25 students

9 university students from Tashkent, Urgench and Nukus and the United States led a 4-hour interactive program on ecological advocacy in Schools #5, #7, and #33 in Khorezm. Topics discussed: differences in urban/rural attitudes towards the environment, the benefits of pursuing higher education, cooperation of urban/rural communities regarding the environment. Students helped with installations, and conduct one *hashar* (day of community service) planting 50 fruit trees at each school. As a conclusion to their program, students divided into teams, developed their own ecological advocacy programs and presented them. In each school, a year's worth of educational supplies was donated in the name of the Coca Cola Foundation and "Time of Wonders" student-charity.

In Muynak School #2, we led an additional educational program. Our *hashar* consisted of donating 2,000 poplar trees from Bukhara, which are adaptable to high salinity soil, as well as 60 kg of saxaul seedlings. The fruit trees were donated to needy families and community centers. The saxaul trees are planted in the Aral desert and help prevent toxic dust storms. Additionally, we donated diapers and toys for newborns to the Muynak nursery. A final presentation of our results and exhibit of childrens' artwork for the Aral was artwork was organized on March 20, 2019.

Active Service Program

Donation to Muynak Nursery



Fruit and Saxaul Tree Planting

Presentation

Financial Summary

Overall cost of the project totals $20,915. It has been spent to cover spending to purchase RO filters, drip-line systems and stronger advocacy for the Aral amongst urban and rural students. Although these are small initial investments, we hope our project will encourage other schools, farmers and students to look into sustainable solutions for the Aral.

Total Cost of the Project	$20,915

Funding	Total
Imkoniyati Cheklangan Yoshlar va Bolalar Markazi	$1,000
Participant Funding	$3,000
Coca Cola Foundation	$14,730
Nur va Xayot	Labor, Installation, Evaluation Fees
WARC Donations and Crowdfunding	$2,185
Total	$20,915

Project	Item/Task	Cost, $
Drip-Line	Dripline: 16/300/0.2 mm strip; PVC/PE 3”/4	$1,448
	Connector screws, adapter, anti-siphon valve, pressure valve	$507
	Filter: membrane; 10m^3 120Mesh filter; metallic bracing	$593
	NamMotors Pump Q=1om^3	$2,139
	Intensive garden design and 3 training sessions for local farmers	$229
	Installation, Labor and Transport	$3,234
Reverse Osmosis System	3 RO-Filters with Electric Booster Pump	$8,400
	Groundwater Tapping/Filter Installation/Facility/2 Water Barrels	Nur va Xayot
	Filter Water Barrel	$71
School and Hospital Donations	School supplies, diapers, toys	$247
Trees and Roses	164 fruit trees planted in Khorezm	$100
Saxaul Trees	60kg seeds donated to Muynak	$106
Travel Costs for Tashkent and New York Participants	Housing	$596
	Travel (International and In-Country	$3,097
Labor		Nur va Xayot
Administrative Fees		$148
	Total	$20,915

Thank you!