MINISTRY OF ECOLOGY, ENVIRONMENTAL PROTECTION AND CLIMATE CHANGE OF THE REPUBLIC OF UZBEKISTAN

GGGI

KOICA

BUILDING CLIMATE CHANGE AWARENESS AND CAPACITY IN THE ARAL SEA REGION

INFOBRIEF FOR GREEN REHABILITATION INVESTMENT PROJECT FOR KARAKALPAKSTAN REPUBLIC TO ADDRESS IMPACTS OF THE ARAL SEA CRISIS (ARAL SEA GRIP)

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Human Asia

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LAYOUT DESIGN:
Nazokat Azimova

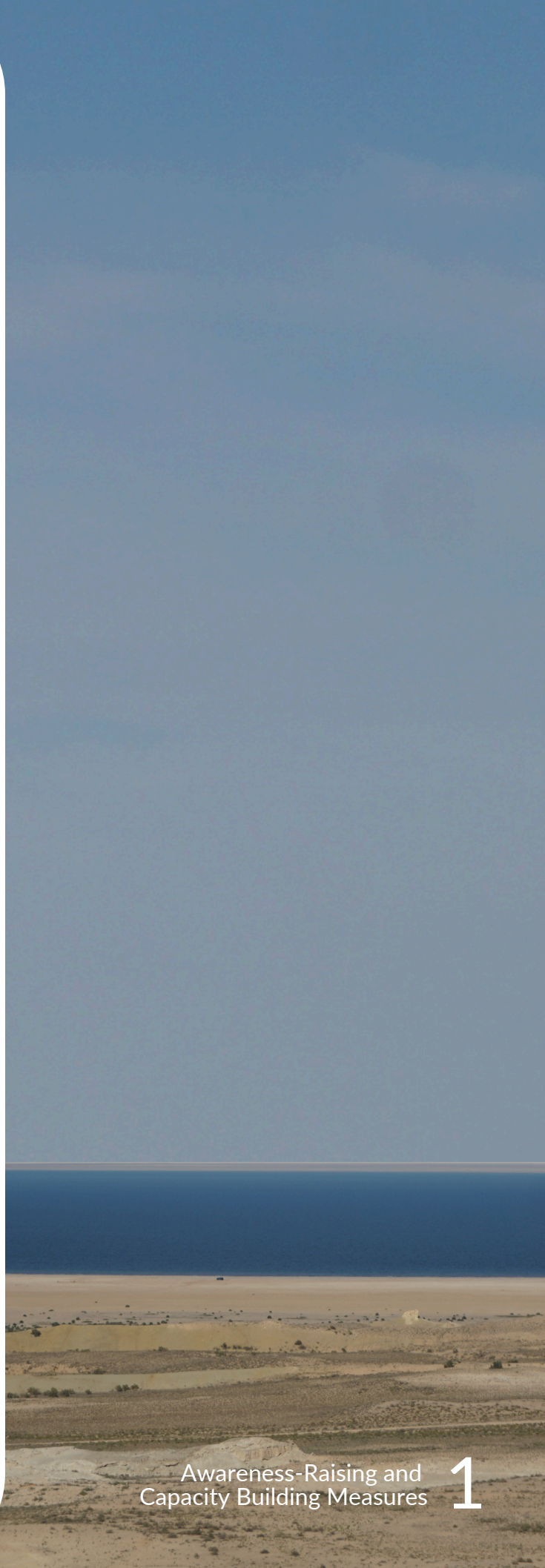
INTRODUCTION

The desiccation of the Aral Sea and its delta put the lives, well-being, and farming activities of the population in Karakalpakstan at risk. The existing hazards are intensified by the effects of climate change.

GGGI's Green Rehabilitation Investment Project for Karakalpakstan Republic to Address Impacts of the Aral Sea Crisis (Aral Sea GRIP), funded by KOICA, set up awareness-raising and capacity development activities under Outcome 2 of the project. These activities increase knowledge and skills to improve peoples' resilience to climate change now and in the future. The measures propose Climate Adaptation methods to improve livelihoods in this agricultural-sector-driven region.

Aral Sea GRIP focuses on dekhan farmers (smallholder farmers) and fermers (private farmers). Drawing on the expertise of GGGI's team on climate change adaptation and climate-smart agriculture, the expertise of its Korean NGO partners in disaster risk reduction, and the experience of partners working in the Aral Sea Region, GGGI developed practical and applicable modules for knowledge transfer, and combined these into sets for trainings to different target groups.

The project developed the capacities of the people involved in agriculture in four of Karakalpakstan's districts, which suffer most due to the Sea's desiccation: Bozataw, Chimbay, Karauzyak, and Kegeyli.



RISK PROFILE

GGGI's Risk Profile assesses people's vulnerability to climate change in the four project districts: Bozataw, Chimbay, Kegeyli, and Karauzyak. This study was conducted December 2021 - April 2022. It targeted household leads aged 18 to 85 who are engaged in primary crop production.

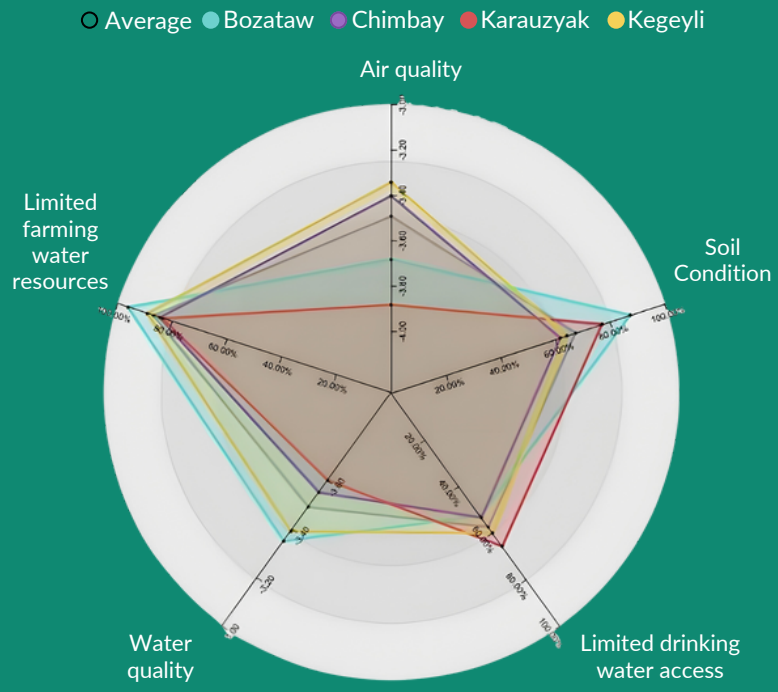
Household leads are categorized into five types of agricultural actors: homestead landowners (farming on household plots), dehkan farms (smallhold farmers), fermers (private farmers), individual entrepreneurs (IEs), and managers of small & medium enterprises (SMEs).

The study used a mixed-methods approach: a quantitative survey among 1,277 participants and a qualitative survey with 16 Focus Group Discussions (FGDs).

KEY FINDINGS

- Key climate change-induced risks: Soil salininization and poor water and air quality
- Agricultural production, food security, and health are particularly sensitive to climate change.
- 76% of residents live below the poverty line, particularly young women (84%) and dehkans (86%). This limits their adaptive capacity against climate change.
- The interest rates for formal finance are prohibitively high, which limits investments.
- Only 2% of respondents have obtained farm managerial skills through formal training.
- More than 50% of dehkan and homestead landowner groups lack strategies to deal with climate change.

EXPOSURE TO CLIMATE CHANGE



topics researched
Natural assets, Efficient use of resources, Risk and resilience, Social inclusion

analysis
Focus Group Discussions (Qualitative), Survey (Quantitative), Local Knowledge and Experience

result
Climate Change and Disaster Risk Resilience Capacity Development Program

report
Karakalpakstan Agriculture Risk Profile for Climate Resilience Capacity Development

2 Awareness-Raising and Capacity Building Measures

CAPACITY BUILDING MODULES

Based on the climate change vulnerability assessment, the Risk Profile suggests **6 capacity development topics** to increase resilience to climate change and disaster risks. GGGI staff developed training modules accordingly.

Module 1: Climate Change & Aral Sea Region
Module 2: Climate Change and Health
Module 3: Climate-Smart Household Farms
Module 4: Farming in Dry Conditions
Module 5: Climate-Smart Farm Management
Module 6: Climate-Smart Agrobusiness Acceleration

The modules are combined in **4 Climate Change Adaptation (CCA) training sets**, and adjusted in length and content to different target audiences in the four project districts:

Household for YOUTH
- Module 1 Climate
- Module 2 Health
- Module 3 Household

14-32 y.o
12,220+ people

Health for WOMEN
- Module 1 Climate
- Module 2 Health

16+ y.o
2,160+ people

Farming for HOUSEHOLD GARDENERS & DEHKANS
- Module 1 Climate
- Module 4 Dry Conditions
- Module 3 Household

16+ y.o
2,200+ people

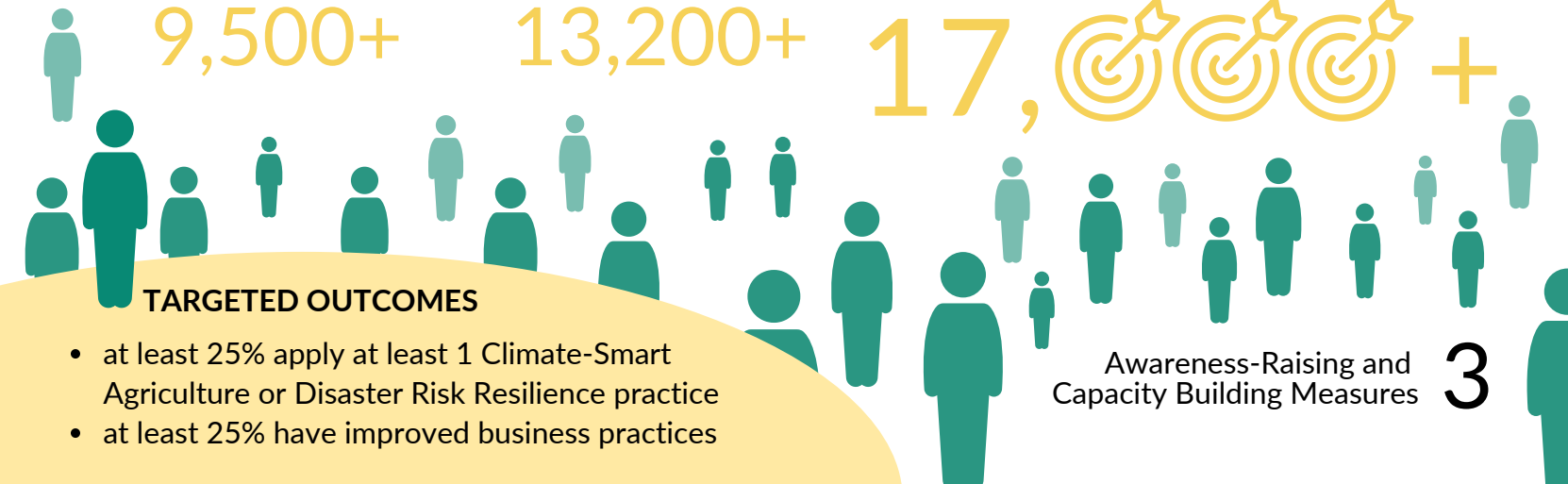
Agribusiness for DEHKANS & FARMERS
- Module 1 Climate
- Module 5 Climate Smart Farm
- Module 6 Agribusiness

16+ y.o
440+ people

Women Total: **9,500+**

Youth Total: **13,200+**

Beneficiaries Total: **17,000+**



TARGETED OUTCOMES

- at least 25% apply at least 1 Climate-Smart Agriculture or Disaster Risk Resilience practice
- at least 25% have improved business practices

Awareness-Raising and Capacity Building Measures **3**

Module 1: Climate Change & Aral Sea Region

CONTENT:

- Climate Change – Causes and Consequences
- Aral Sea Crisis – Causes and Consequences
- Climate Change & Aral Sea Crisis: Mutual Influence
- Climate Change Mitigation and Adaptation
- Digital Resources

Module 2: Climate Change and Health

CONTENT:

- Diseases related to the ecological situation
- Air pollution: Hazards and protection measures
- Water pollution: Hazards and protection measures
- Digital resources

NOTE: This material was adapted by UNICEF!

Module 3: Climate-Smart Households

CONTENT:

- Composting
- Tree windbreaks
- Drought and salt-tolerant trees
- Tree planting
- Tree pruning
- Small greenhouses
- Drip irrigation
- Digital resources

Module 4: Farming in Dry Conditions

CONTENT:

- Conservation Agriculture: No-tillage, mulching, crop rotation
- Tree Windbreaks
- Tree Pruning
- Viticulture: Basics in dry conditions
- Biological pest prevention
- Digital resources

Module 5: Climate-Smart Farm Management

CONTENT:

- Agribusiness in the socio-economic conditions of Karakalpakstan
- Writing a business plan for climate-smart agribusiness, available services and resources
- Assessing the effectiveness of entrepreneurial activity in climate-smart agriculture

Module 6: Climate-Smart Agrobusiness Acceleration

CONTENT:

- Climate-resilient agriculture
- Value chain: Basics of cooperation with value chain stakeholders
- Digital platforms for climate resilient agribusiness
- Business Development Platform (BDP) – Jasilawil – for agricultural sector of Karakalpakstan


water filter


handouts

group activities

engaging activities


theory


biohumus


practice
compost


all trainings
in the local language


discussions


affordable recommendations


women participation

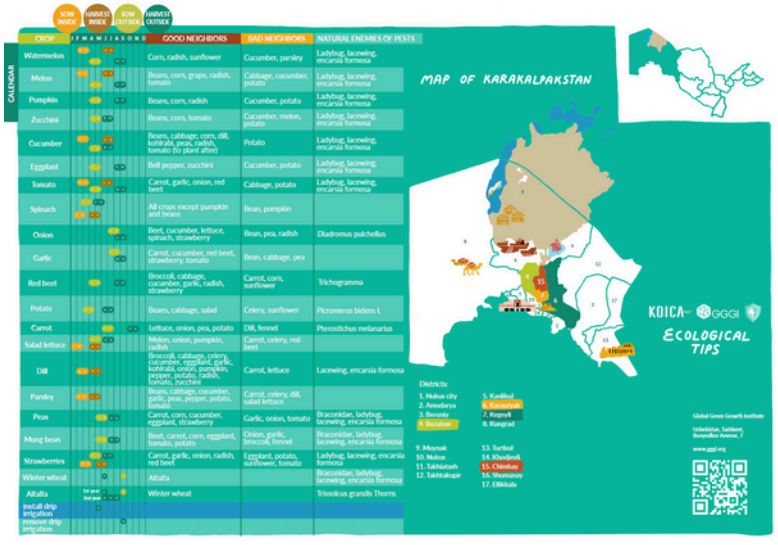

trainings for teachers

OVERVIEW

HANDOUT MATERIALS

GGGI and designer Polina Pokataeva developed brochures, calendars, posters, and stickers to be handed out to the participants of GGGI's Climate Change Adaptation sessions.

The illustrations were inspired by the art of Nikolay Karaxan (1900-1970), showcased at the Savitsky Museum in Nukus, Karakalpakstan. The illustrations were based on the following paintings: "Going to work", "Two women near hovuz", "Irrigators" and "Landscape with a train". The brochures present short recommendations, tailored specifically for the CCA Household, CCA Health, and CCA Farming sets.



10 Awareness-Raising and Capacity Building Measures

The brochures provide clear instructions for climate change adaptation measures to help families establish new habits to protect their household against climate risks.
The brochure is folded into a square. It is printed on two sides, each side with different content: **outside** - a map and planting calendar, **inside** - recommendations.

Outside – The planting calendar informs which plants are beneficial to each others' growth and which natural remedies can be used against common pests. The map shows GGGI Aral Sea GRIP's target districts and the QR code leads people to the project's Business Development Platform for Karakalpalstan, greenaral.uz, App: Jasilawil

Inside – Explanations of 6 different household-scale measures for climate change adaptation explicitly designed for the CCA Household (for youth), CCA Health (for women), and CCA Farming (for dehkans) sets.

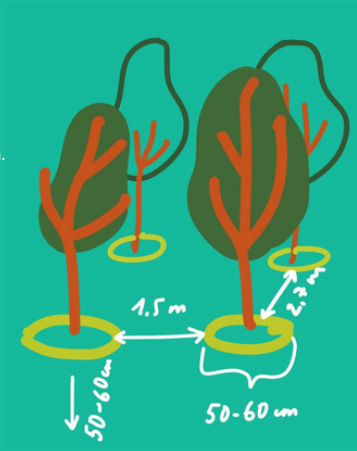
COLLECT AND REUSE WATER

In many towns in Karakalpakstan, tap water is only available for some hours in the day. The less water you use, the more is leftover for others who live in those towns at the end of the water supply line.
Reduce your use by collecting and reusing water! Catch and save rain to use in the garden later. Collect the water you used to bathe, wash dishes and clean the house. You can use bathing water to keep down sand outside, use dish & cleaning water to flush a toilet and if you use natural soaps for bathing, washing dishes and cleaning, you can use the soapy water for your trees.

PLANT TREES WELL

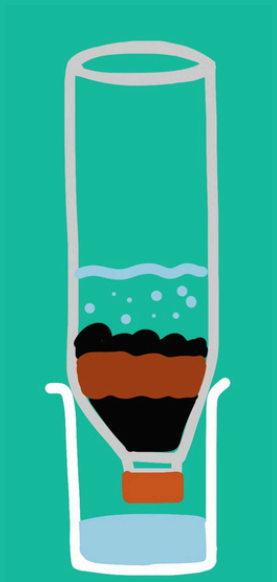
How well a tree grows depends on the type of tree, its location and the care provided. Avoid transplant shock, which harms the root system and might kill the sapling.

- Transport saplings in a closed truck and handle the roots carefully
- Plant trees in late fall and early spring, at least 1,5m apart from one another
- The planting hole needs to be at least 50 cm wide. Too shallow and narrow holes are bad for tree growth.
- A deep hole prevents the roots from shaking in windy conditions, and helps the roots absorb water.
- Water the sapling with at least 50L after planting and fill the hole with snow in winter.



DIY WATER FILTERS

Create your own water filter to remove odors and sediment, like sand.
Cut the bottom off a bottle and drill a small hole in the bottle cap. Place a layer of activated charcoal, then clean sand and gravel inside. Place the bottle over a large jar and pour water over the gravel. It will slowly drip through the layers through the bottle cap into the jar, clean. If you use a bucket as the filter, you can filter large.



MULCHING: REDUCE SALINIZATION AND RETAIN MOISTURE

Mulching is covering the ground with leftover plant matter. It reduces salinization by 60-300%. It also increases soil humidity up to 3.2%, which in turn increases biological activity in the soil.

Mulching in autumn brings large benefits in spring! You can use fallen leaves, compost, hay, or crop stalks, like those of cotton.

DON'T BURN LEAVES

Burning leaves release smoke with particles which collect in your lungs and stay there. Leaf smoke also contains toxic gases which are especially dangerous for people with asthma, for children and the elderly. Instead of burning leaves, you can put them on top of soil. The layer protects soil from drying out, reduces dust pollution and provides nutrients to the soil when the leaves decompose. You can also put leaves in compost heaps and use the compost for improved gardening a year later.

DON'T BURN WASTE

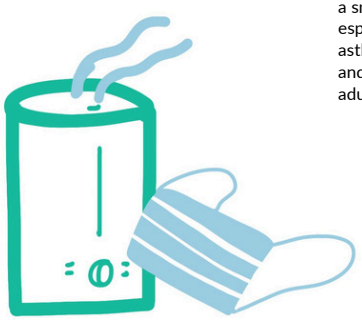
Burning trash, especially plastic, rubber, aerosol cans and painted or treated wood releases toxic chemicals into the air. Those chemicals can cause respiratory problems and cancers. Waste should always be sent away with garbage collectors.

PROTECT AGAINST WIND WITH TREES

Plant lines of trees all around your house and garden, with at least two rows on the windiest side (usually the north). These "windbreaks" will stop the wind from blowing sand and other pollutants directly to your house, cattle, and fields. Reducing wind speed makes it easier for soil to hold its moisture. Healthy, moist soil creates less dust and produces healthier vegetables.

CONTROL THE AIR QUALITY IN YOUR HOME

While it's hard to regulate outdoor air pollution, you can control the air in your own home. Consider purchasing an air purifier. When cooking, close the kitchen door to protect other rooms and open a window to ventilate. Cooking, especially on gas stoves, is a major contributor to indoor pollution. In many kitchens worldwide, the air is unhealthier in the kitchen than it is outdoors.



REDUCE INHALED POLLUTANTS

When the air is polluted, avoid outdoor activities and cover your face and mouth with a medical mask or clothing. Your lungs will thank you if you reduce cigarette and shisha smoking and don't spend time with smokers (second-hand smoke). Smoking indoors is never good because the pollution concentrates in a small space. Second-hand smoke is especially bad for children- it causes asthma, pneumonia, ear infections and weaker lungs when they are adults.

PROTECT AGAINST WIND WITH TREES

Plant trees at least two rows thick around your house and garden, on the windiest side (usually the north). These "windbreaks" will top the wind from blowing sand and other pollutants directly to your house, cattle and fields. Less exposure to wind also enables soil to hold moisture better. Healthy, moist soil creates less dust and produces healthier vegetables.

IMPROVE HEALTH WITH TREES

The leaves of trees filter the air. If you plant a windbreak, the outer row of trees should be the tallest. Choose trees of which the leaves taste good to your cattle, so that you have free fodder in autumn. The inner row can be smaller trees, like fruit trees. Your family can benefit from the vitamins.

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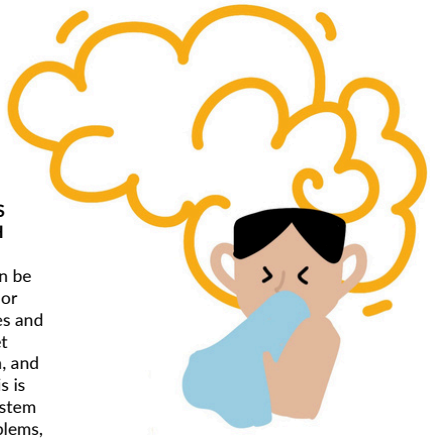


DUST AND SALT STORMS AFFECT HUMAN HEALTH

Small particles in the air can be sand, dust, salt, pesticides, or pollution from cooking, fires and cars. The particles often get trapped in the nose, mouth, and upper respiratory tract. This is bad for your respiratory system and can cause chronic problems, such as asthma. It can also cause serious infections, like tracheitis, pneumonia and rhinitis. Those infections can be hard to get rid of, so it's good to protect yourself and your family, especially if you already feel early symptoms of respiratory problems.

PROTECT YOUR HEALTH BY DRINKING CLEAN WATER

REMOVE BACTERIA AND VIRUSES.

Sunlight and boiling kill viruses, bacteria and parasites. Boil water continuously for 1 minute to make it safe to drink. You can also put water in clear glass or PET (strong plastic) bottles in the direct sunlight for 6 hours to make drinking water. Make sure that the water is clear beforehand: Sediment in the water, likesand, will block the process.

DIY WATER FILTERS

Create your own water filter to remove odors and sediment, like sand. Drill a small hole in a bucket and place a layer of powdered activated charcoal, then clean sand and, last, gravel in the bucket. Place the bucket over a large jar and pour water over the gravel. It will slowly drip through the gravel, sand and charcoal from the bucket into the jar, clean.

EXERCISE REGULARLY

Low-impact exercise (especially dancing, cycling, swimming and long walks) done regularly can improve lung capacity, increase oxygen levels and blood circulation. Exercise also brings joy!

DRINK GREEN TEA AND REDUCE SUGAR

Sip green tea. Green tea is packed with antioxidants, which reduce inflammation. It reduces the risk of coronary diseases, stroke, some chronic diseases, and cancers.
Reduce the amount of sugar you use in your tea over time, until you're happy with unsweetened tea. Sugar sustains and contributes to inflammation, obesity, diabetes, and bad teeth.

EAT ANTI-INFLAMMATORY FOODS

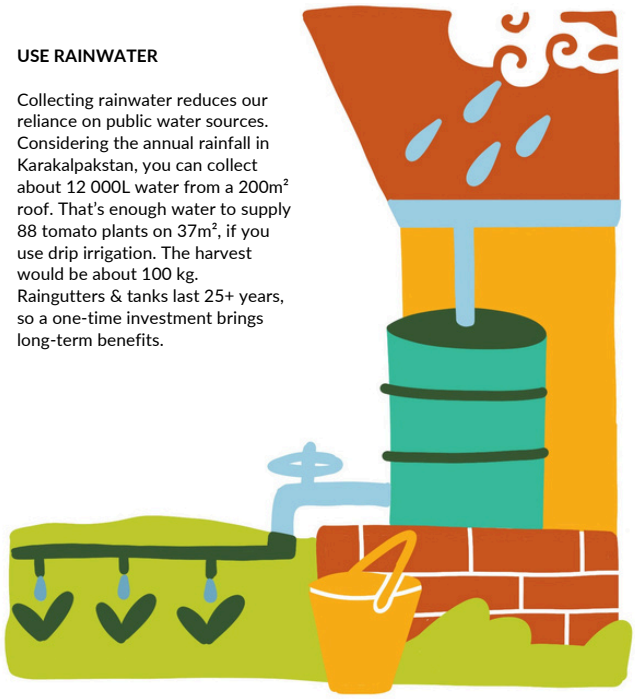
Enjoying foods with anti-inflammatory properties can help to reduce inflammation, anywhere in your body. This can help your respiratory system as well.

Examples of anti-inflammatory foods:

- Cherries & berries
- Grapes
- Bell peppers & chili peppers
- Leafy greens (spinach, cabbage)
- Broccoli
- Tomatoes
- Mushrooms
- Beans and lentils
- Nuts, like almonds & walnuts
- Turmeric
- Dark chocolate

USE RAINWATER

Collecting rainwater reduces our reliance on public water sources. Considering the annual rainfall in Karakalpakstan, you can collect about 12 000L water from a 200m² roof. That's enough water to supply 88 tomato plants on 37m², if you use drip irrigation. The harvest would be about 100 kg. Raingutters & tanks last 25+ years, so a one-time investment brings long-term benefits.



MAKE COMPOST TO IMPROVE SOIL AND GET BETTER HARVESTS

Making compost is easy & for free. Compost helps plants with nutrients and by balancing soil density. Soils that are too compact are loosened by compost.

In soils that are too loose, compost clumps the soil together. This balance allows plants to develop better root systems. The healthy roots can then easily absorb nutrients from the compost, leading to much healthier plants.

PLANT DROUGHT-TOLERANT TREES AND SHRUBS

Select trees which don't need water frequently to make your land more resistant to droughts.

Consider that:
- Native trees are better adapted to local soil, climate and pest conditions.
- Trees with small leaves cool themselves better and need less water
- Trees with long, upright crowns use water more efficiently than trees with flat, wide-spead crowns.

The best trees to plant locally are:

- Turanga
- Blue Poplar
- Black Poplar
- Tamarix
- Karagach
- Ailanthus
- Ash
- Locust

The best fruit trees to plant locally are:

- Russian Olive
- Mulberry
- Japanese quince
- Apple
- Pear
- Black Cherry
- Apricot
- Chinese Plum
- Cherry Plum

MULCHING: REDUCE DEPENDENCE ON WATER AVAILABILITY

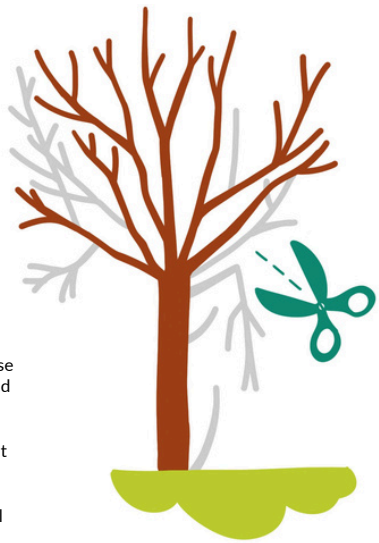
Mulching is placing crop residue on soil. Mulch absorbs rain and protects the soil from wind. It stops soil from becoming dusty and flying away (erosion).
When you protect the soil surface, it also crusts less. With less crust, the soil can absorb water better (infiltration) and less water runs off it (runoff).

Leaving cut crops on the field also reduces weeds.

Keeping soil moist with mulch reduces your water needs.

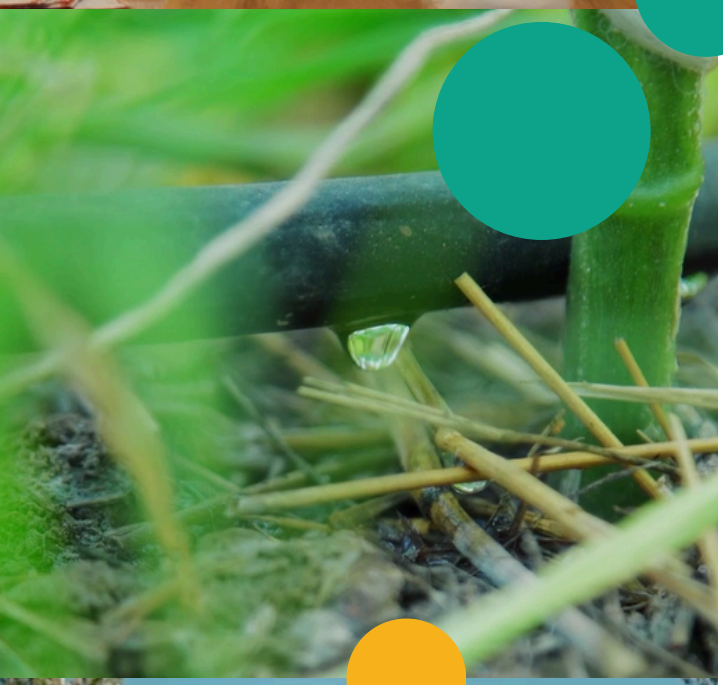
PRUNE YOUR TREES

To grow and produce healthy fruits, all tree branches need sunlight and good ventilation. Too many branches and a dense crown lead to branch death and very few fruits. With fewer branches and leaves, a tree directs it's energy towards fruit production rather than branch growth. Always prune trees when they're dormant (late fall or early autumn), always cut branches close to the stem and always use sharp and clean tools, so that you don't damage the tree.



SET UP WINDBREAKS

Plant lines of trees all around your house and garden, with at least two rows on the windiest side (usually the north). These "windbreaks" will stop the wind from blowing sand and other pollutants directly to your house, cattle, and fields. Reducing wind speed makes it easier for soil to hold its moisture. Healthy, moist soil creates less dust and produces up to 33% higher yields in dry years.



MEDIA CAMPAIGN

To raise people's awareness on Climate Change and Disaster Risk Resilience and to inspire behavioral change, GGGI Uzbekistan developed 6 videos and 3 radio pieces on the topics of biological pest control, fresh air, windbreaks, mulching, water filtration, and drip irrigation. The campaign pieces were broadcast on TV and radio as well as posted on social media.

Around 12,000 people (66% women & youth) were targeted by the one-month media campaign, but we reached

280 million+

views and listens!

*as per viewership numbers from TV & radio channels, and social media views

LEARN MORE about Aral Sea GRIP & check the project news:

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