



The Fund for Financial  
Support of Agriculture of the  
Republic of Kazakhstan



Empowered lives.  
Resilient nations.

The project of the Government of the Republic of Kazakhstan  
“Improving sustainability of the PA system in desert ecosystems through promotion  
of biodiversity-compatible livelihoods in and around PAs”, financed by the GEF and supported by the UNDP

# ECO-DAMU

**MICROCREDIT SCHEME – A FINANCIAL SOLUTION  
TO SAVE BIOLOGICAL DIVERSITY**

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This methodological guide has been developed as part of the Outcome 3 “Community involvement in conservation and sustainable use of biodiversity in and around PAs is enhanced”, UNDP-supported GEF-financed project “Improving sustainability of the PA system in desert ecosystems through promotion of biodiversity-compatible livelihoods in and around PAs”, implemented jointly with Government of Kazakhstan (hereinafter referred to as project).

The guide gives basic concepts and modalities to facilitate provision of local people with microcredits in 3 project areas, which are adjacent to protected areas of Almaty, Mangystau and Kyzylorda regions by offering replacement of unsustainable practices with alternative ones. This will allow reducing high pressure on the biodiversity of desert and semi-desert ecosystems, wetlands in three project areas. In the second phase (2020-2024), local communities will have access to microcredits in the periphery of all 27 protected areas of Kazakhstan located not more than 50 km from their boundaries, including emerging protected areas. The publication is designed for the staff and directors of protected areas, experts in the field of agriculture, fisheries, hunting management, tourism, rural people to involve them in protection and better management of biodiversity by using sustainable and environment-friendly natural resources management practices.

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The United Nations Development Programme (the UNDP) was established in 1965 and is the UN's global development agency, advocating for change and connecting countries to knowledge, experience and resources to help people build a better life. The UNDP partners with people at all levels of society to help build nations that can withstand crisis, and drive and sustain the kind of growth that improves the quality of life for everyone. On the ground in nearly 170 countries and territories, we offer global perspective and local insight to help empower lives and build resilient nations.



## The project of the Government of the Republic of Kazakhstan “Improving sustainability of the PA system in desert ecosystems through promotion of biodiversity-compatible livelihoods in and around PAs”, financed by the GEF and supported by the UNDP

The UNDP-supported GEF-financed project, implemented jointly with MOA's Forestry and Wildlife Committee was launched in 2013. The project objective is to enhance the sustainability of protected areas in globally important desert and semi-desert ecosystems by expanding their geographic coverage, promoting a landscape approach and supporting biodiversity-compatible livelihoods in and around PAs. The solution also depends on engagement of local communities in activities that bring income on the one hand and ensure a biodiversity dividend on the other, as well as their participation in PA management.



The Fund for Financial  
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## The Fund for Financial Support of Agriculture joint-stock company (JSC)

The Fund for Financial Support of Agriculture JSC (hereinafter referred to as the Fund) was founded in 1998 under the auspices of the State Fund for Financial Support of Agriculture, established in accordance with the decree of the Government of the Republic of Kazakhstan No. 1447 dated 22 December 1994. In 2007 the Fund joined KazAgro National Managing Holding JSC, which is focused to incentivize the development of the agro-industrial sector and improve its competitiveness on the domestic and foreign markets. The main objectives of the Fund is to increase the access of rural people and small agricultural producers to loan resources, develop microcredit infrastructure in rural area, develop entrepreneurship and improve the well-being of rural people. The Fund has 14 branches in towns of regional significance.



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Photo Eliseev D.

## LIST OF ACRONYMS

UNO	The United Nations Organization
GEF	The Global Environmental Facility
PK	Republic of Kazakhstan
UNDP	The United Nations Development Programme
GRK	The Government of Republic of Kazakhstan
FWC	The Forestry and Wildlife Committee
MOA	The Ministry of Agriculture
FFSA	The Fund for Financial Support of Agriculture joint-stock company
CO	Central Office
PA	Protected areas
SNNP	State national nature park
SNWP	State nature wildlife preserve
SNNR	State national nature reserve
AA	Alternative activities
OEL	Overhead electric lines



*Photo Akhmetzhanov G.*

# GLOSSARY

- **Biodiversity (biological diversity)** is the variety of life in all its forms and the indicator of the complexity of the biological system, and different qualities of its components. Biodiversity also implies diversity at three levels of the organization: genetic diversity (diversity of genes and their variant forms – alleles), species diversity (diversity of species in ecosystems) and finally ecosystem diversity, i.e. diversity of ecosystems themselves.
- **Ecosystem** means dynamic complex of the community of plants, animals and microorganisms as well as nonliving components of their environment which all interact as a system.
- **Recreational load:** a number of vacationists at one time per unit area taking into account the total time of the vacation type for the accounting period or per unit time.
- **Green technology** in agriculture is a technology that is aimed at highly-marketable, subsistence farming using environment-friendly techniques of operation such as the efficient use of water (e.g. drip irrigation), the wide use of organic and natural fertilizers, optimal soil treatment, the rehabilitation of degraded lands, the use of renewable sources of energy (solar energy, biofuel).
- **Alternative activities** – activities aimed at preventing the cause of biodiversity loss, introducing best practices of resource management in desert ecosystems as well as making it possible to have sustained income-earning for rural people.
- **Eco-Damu microcredit scheme** is implemented within the project of the Government of Kazakhstan “Improving sustainability of the PA system in desert ecosystems through promotion of biodiversity-compatible livelihoods in and around PAs”, which is financed by the GEF and supported by the UNDP.
- **Prime nominal rate of return:** annual remuneration that determines the size of effective annual rate of remuneration.
- **Effective annual rate of remuneration** is the rate of remuneration in the verified, annual, effective, comparable quantification of the microcredit to be calculated according to the Rules (*defined by the National Bank of the RK*).
- **Borrower** is a legal entity that borrows money under a contract (agreement) and who is obliged to return them within the set term in accordance with the contract.



Photo Akhmetzhanov G.

# INTRODUCTION

The project of the Government of the Republic of Kazakhstan "Improving sustainability of the PA system in desert ecosystems through promotion of biodiversity-compatible livelihoods in and around PAs" (hereinafter referred to as project) is implemented under the financing from the Global Environmental Facility and with support from the United Nations Development Programme.

The primary project objective is to enhance the sustainability of protected areas in globally important desert and semi-desert ecosystems by expanding their geographic coverage, promoting a landscape approach and supporting biodiversity-compatible livelihoods in and around PAs.

The project is focused on desert and semi-desert ecosystems of Ile-Balkhash, Ustyurt and Aral-Syrdarya areas. The long-term solution to addressing the threat of loss of desert and semi-desert ecosystems takes a more strategic landscape-based approach to protected area expansion and management of the least-represented desert and semi-desert ecosystems in Ile-Balkhash and Southern Kazakh desert areas. The solution relies on three key elements. The first element relates to expansion of the PA estate to include desert ecosystems, accompanied with management plans for the PAs, financing, and permanent and fully staffed management units. Secondly, the solution depends on a high degree of integration of these protected areas with buffer zones, wildlife corridors and other areas of the broader productive landscape. Finally, the solution depends on engagement of local communities in activities that bring income on the one hand and ensure a biodiversity dividend on the other, as well as their participation in PA management.

It is worth noting that unsustainable natural resources management, unsustainable practices of economic activities

(agriculture, forestry, fisheries and hunting management) and other human activities have a devastating impact on the environment, leading to reduction of biological diversity.

The number of saigas (antelopes) and argali is currently dropping in our steppes at an alarming rate, fish stocks are depleted in the lakes and rivers, poaching is on the rise, forest areas and productive pastures are reduced. We are concerned about it. Unsustainable nature resources management leads to water pollution, depletion of biological resources and disruption of the ecological system. Resolution of environmental issues should be the target of not only national parks and reserves but also of local people. As it is people who are in contact with nature, they can have either positive or negative effects on the processes that occur in it. The Eco-Damu microcredit scheme helps users of nature resources, living in the vicinity of protected areas (national parks, reserves, preserves, etc.) contribute to maintenance of the ecological balance.

The development of alternative activities as part of the Eco-Damu scheme not causing harm to biodiversity and fostering conservation and sustainable use of ecosystem resources allows not only to reduce poverty levels in rural area but also enables local people to participate and contribute to conservation of biodiversity.

The scheme provides highly advantageous financing to rural people with the lowest interest rates among microcredit schemes - 4%. While taking a loan under Eco-Damu and starting their own businesses, borrowers contribute to maintenance of the ecological balance and help themselves and their relatives. The loans are offered only to rural inhabitants who do not cause damage to the wildlife but rather help to restore lands, flora and fauna, through introducing alternative activities. This allows mitigating the harm and excessive pressure being posed on the environment, reduce depletion of nature resources on regional and global level. Today development of alternative activities and introduction of sustainable agriculture, forestry, fisheries and hunting management practices unfortunately remains under-financed sector. For example, if



alternative activities are put in place, the pressure on recreational zones is reduced, uncontrolled tourism is diminished, poaching is reduced, forest logging is prevented, campfires decrease (which will prevent fire risks), eradication of endemic plant species is stopped, negative effects of inevitable environmental devastation are addressed. By introducing alternative activities, rural people contribute immensely to nature conservation of their homelands, prevention of negative effects of inevitable environmental devastation and improvement of the welfare of their families and the whole region. Overexploitation and environmental pollution could result in extinction of common animal and bird species so that future generations will not be able to see them. Present and future generations have the right to live in an environment that

is good for health and well-being. Our land and all life on Earth are critically important for further evolution and protection of life-sustaining systems of the biosphere. Achieving gender equality is one of the main factors of sustainable human development. Eco-Damu helps primarily women get employed and have a revenue in a rural area. Microcredit line ensures equal opportunities for economic independence and development of women-led business in rural area. The primary goal of Eco-Damu scheme is to create enabling environment for efficient development of private entrepreneurship in the vicinity of protected areas by offering replacement of unsustainable practices with alternative ones, which will help reduce intensive pressure on biodiversity of desert and semi-desert ecosystems, wetlands.

# OUTLINE OF THE ECO-DAMU MICROCREDIT SCHEME

The Eco-Damu microcredit scheme for 2014-2024 is implemented by UNDP in Kazakhstan in collaboration with MOA's Forestry and Wildlife Committee and the Fund for Financial Support of Agriculture JSC. The scheme is designed for rural people who live near protected areas.

The Eco-Damu microcredit scheme has been designed as part of the Outcome 3 "Community involvement in conservation and sustainable use of biodiversity in and around PAs is enhanced", UNDP-supported GEF-financed project "Improving sustainability of the PA system in desert ecosystems through promotion of biodiversity-compatible livelihoods in and around PAs", implemented jointly with Government of Kazakhstan.

## THE OBJECTIVE OF THE SCHEME

The objective of the scheme is to foster microcredit financing for rural communities that are adjacent to all protected areas of the country to develop alternative activities and improve livelihoods of local people, which will help reduce human-induced pressures of productive landscapes near PAs.

## GOALS OF THE SCHEME

Development of alternative activities and introduction of sustainable and environment-friendly agriculture, forestry, fishing, hunting management and eco-tourism practices and other activities that do not cause harm to biodiversity and ecosystems near Kazakh protected areas;

Informing the local population;

Informing potential borrowers, local communities on FFSA's microcredit financing;

Microcredit financing of projects related to development of alternative activities;

Providing technical and institutional support to local farmers and representatives of the private sector participating in the scheme;

Dissemination of information on positive experience of alternative economic activities carried out with the support of the project.

## PERIOD OF THE SCHEME

2014-2024

**TERRITORY OF THE SCHEME IMPLEMENTATION, PHASE I**

In the first phase (2014-2019) the scheme is realized in pilot areas of four PAs of the Desert project located not more than 50 km from the boundaries of PAs. The following protected areas are included in the scheme: Barsakelmes and Ustyurt state nature reserves, Altyn Yemel national park and soon-to-be-established Ile-Balkhash reserve.

**TERRITORY OF THE SCHEME IMPLEMENTATION, PHASE II**

Rural settlements around all 27 PAs of the country, including new ones will be included in the second phase (2020-2024). They should be located no more than 50 km from the boundaries of protected areas.

## CONDITIONS OF ECO-DAMU MICROCREDIT SCHEME

The scheme is aimed at providing special support to rural people who live near protected areas through affordable microcredits to develop environment-friendly and biodiversity-compatible activities. Projects under implementation respect gender aspects

and are aimed at sustainable livelihoods. It is expected that women and low-income households will be involved in implementation of projects.

**Targeted group**

Individuals and legal entities, farms and peasant households, individual entrepreneurs, low-income households, local communities.

**Annual interest rate of remuneration**

	phase I	phase II
	<b>4%,</b> effective rate no more than 4,4%	<b>6%</b>

**Project budget**

**\$1 500 000**

### Credit term

Minimum credit term	Maximum
6 months	up to 54 months ( <i>commission fee for credit allocation is not charged, currency – tenge</i> )

### Amount of loan

from 100 monthly calculation indices (MCI) to 5 400 MCI  
Flexible repayment schedule taking into account borrower's capacities, grace period for repayment is 1/3 of the loan term.

### Individual microcredit financing

Collateral for all loans without exception.

### Loan collateral

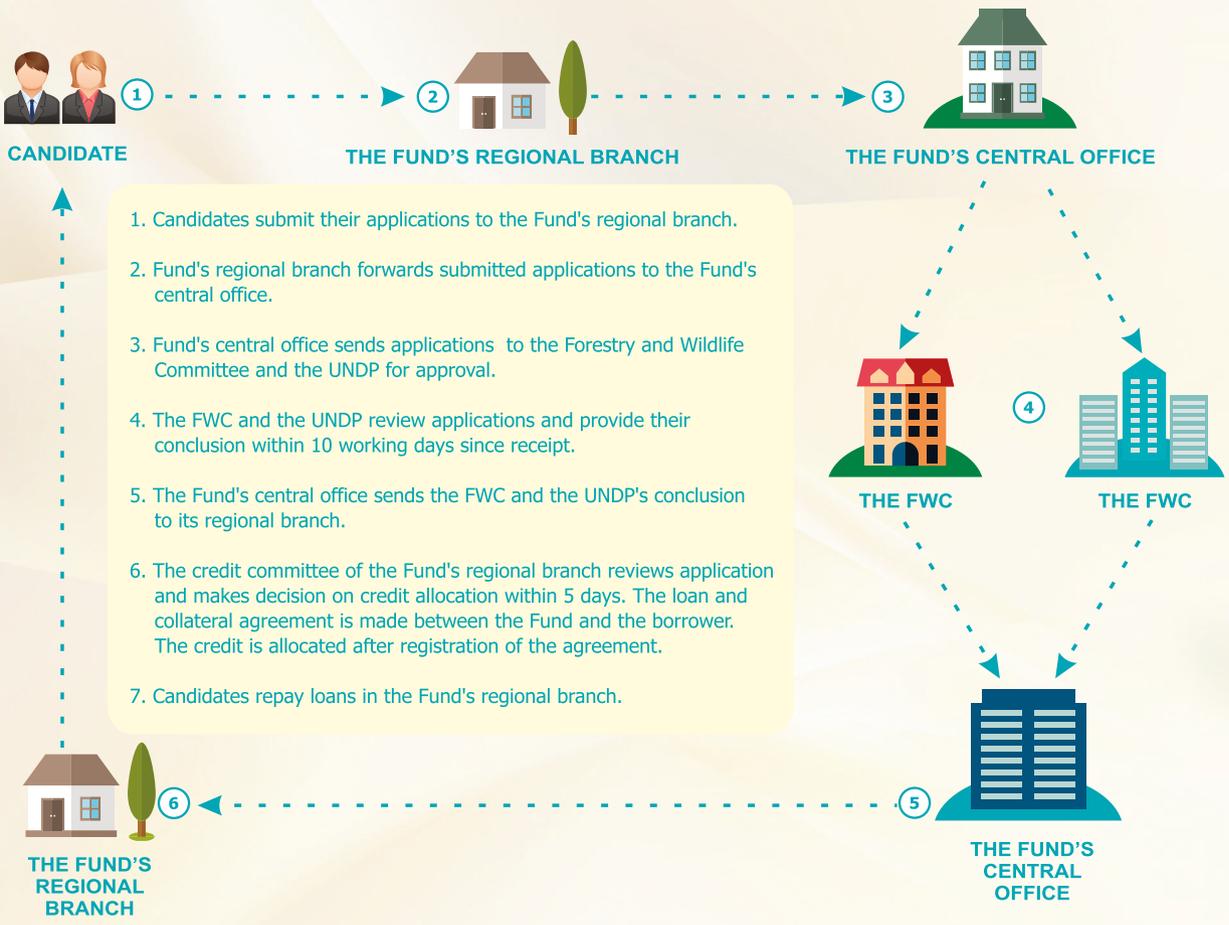
When FFSA's microcredit is provided, the principle of its full repayment is applied with all risks in mind. The collateral of potential borrowers can be provided in the following forms: 1) collateral (fixed assets, tangible assets, legal security of tenure, ownership and land property, capital stocks, current assets, deposits, money and other assets, when enforced collection is applied according to the current legislation); 2) guarantees by third persons (Kazakhstan's second-tier banks with sound financial standing, international banks with high credit ratings, companies with excellent reputation and assets).

### Main requirements to the borrower

Provision of documents indicating that land parcels are privately owned, rented as well as agreements on joint venture near protected areas.

### Special conditions

Women have preferential right to take part in the scheme.



1. Candidates submit their applications to the Fund's regional branch.
2. Fund's regional branch forwards submitted applications to the Fund's central office.
3. Fund's central office sends applications to the Forestry and Wildlife Committee and the UNDP for approval.
4. The FWC and the UNDP review applications and provide their conclusion within 10 working days since receipt.
5. The Fund's central office sends the FWC and the UNDP's conclusion to its regional branch.
6. The credit committee of the Fund's regional branch reviews application and makes decision on credit allocation within 5 days. The loan and collateral agreement is made between the Fund and the borrower. The credit is allocated after registration of the agreement.
7. Candidates repay loans in the Fund's regional branch.



Economic activities, entailing decrease of the negative impact on the environment by using sustainable and environment-friendly methods of natural resources management



## SUSTAINABLE DEVELOPMENT OF ECOLOGICAL TOURISM



- establishment of guest houses with development of national traditions;
- provision of ecological routes with necessary facilities, construction and development of sites and other tourism infrastructure;
- handicrafts and souvenir production for tourism.

### Examples:

- procurement of materials to provide the guest house with necessary outfitting;
- procurement of sewing machines, materials to manufacture national items and clothes;
- procurement of materials, machinery to make souvenirs, handicrafts;
- procurement of potter's wheel, materials to produce pottery;
- procurement of wool, paints to make felt products and souvenirs.

## SUSTAINABLE FOREST MANAGEMENT



- forest nurseries and plantations of fast-growing wood species (willow, poplar) to have raw material for basket-weaving, making furniture, yurts;
- development of non-wood forest use (medicinal plants, bee keeping, mushrooms, berries, etc.)

### Examples:

- planting and sale of seedlings, including fruit-tree seedlings;
- growing of fast-growing poplars to sell for fuel, industrial wood;
- growing of willow as a material for handicrafts;
- development of bee keeping in pastureland.

## PUTTING ALTERNATIVE SOURCES OF ENERGY AND RESOURCE-EFFICIENT TECHNOLOGY IN PLACE



- biogas plants, solar batteries, wind energy, mini hydropower stations, heat pumps and etc.;
- resource-efficient technology.

### Examples:

- procurement of solar batteries for driers to produce dried fruits, dry medicinal herbs, etc.;
- procurement of solar batteries, wind-power unit, mini hydropower station for distant livestock breeding, greenhouses;
- procurement of solar batteries, wind-power unit, mini hydropower station for houses located in the pond farm;
- efficient irrigation (drip irrigation).

## SUSTAINABLE FISHERIES



- development of commercial fisheries and aquaculture

### Examples:

- procurement of equipment for fish nursery, materials to establish a pond farm;
- procurement of construction materials to establish a pond farm for tourists and amateur fishermen

## SUSTAINABLE HUNTING MANAGEMENT



- development of more humane hunting industry;
- game breeding for sustainable hunting;
- development of national types of hunting for demonstration purposes;
- breeding of national hunting dogs

### Examples:

- procurement of cages, enclosures to breed pheasants, boars with their further release in the wild;
- costs related to breeding and keeping Tazy hunter dogs with the aim to preserve Kazakh traditional hunting management culture;
- costs related to breeding and keeping hunter birds (golden eagles) with the aim to develop national hunting;
- costs related to conduction of biotechnical activities by reseeding forage crops and nutrition.

# SUSTAINABLE AGRICULTURE

## PLANT PRODUCTION

### FRUIT AND NUT PRODUCTION



- nurseries, orchards, berry fields and plantations

#### Examples:

- procurement of construction materials to establish a nursery;
- procurement of planting-stock;
- procurement of organic fertilizers

### VEGETABLE GROWING, Including Growing In Greenhouses Using Advanced Technology



- projects related to vegetable and mushroom growing entailing intensive highly productive vegeculture with the use of only organic fertilizers and fertilizers certified for food production

#### Examples:

- establishment of greenhouses with drip irrigation;
- procurement of plastic sheet to grow vegetables (frames);
- procurement of equipment for drip irrigation;
- establishment of greenhouses with the use of solar batteries

### AGRICULTURAL PROCESSING



- creation of small processing enterprises, which is linked with large quantities of crop production, i.e. establishment of promising plantations, requiring widespread deployment;
- introduction of drying method with the use of alternative sources of energy (solar and other)



#### Examples:

- equipment of mini-bakeries to sell bread and baked goods (cabinet oven, cake mixer, forms, dough roller, etc.);
- equipment to dry vegetables and fruit;
- equipment to produce juice, pastes, puree

## LIVESTOCK BREEDING

- sustainable rangeland management;
- processing of animal products



#### Examples:

- rehabilitation of degraded lands;
- rehabilitation of rangeland infrastructure to use remote pastures;
- development of renewables for remote pastures (procurement of solar batteries);
- procurement of materials to enclose rangelands (mesh, pillars, materials for irrigation);
- creation of mini-workshops to process dairy products

### RABBIT BREEDING



- Procurement of construction materials (minifarms with rabbits in cages);
- Procurement of equipment to breed and keep rabbits (cages, drinking bowls, feeders, shades)

### POULTRY FARMING

(chickens, geese, ducks, quails, guinea fowl, turkeys)



#### Procurement of materials for aviary;

- Procurement and production of chicks (incubator, hatcher);
- Equipment to process and store carcasses and feathers;
- Procurement of hatching eggs.

### BEE KEEPING



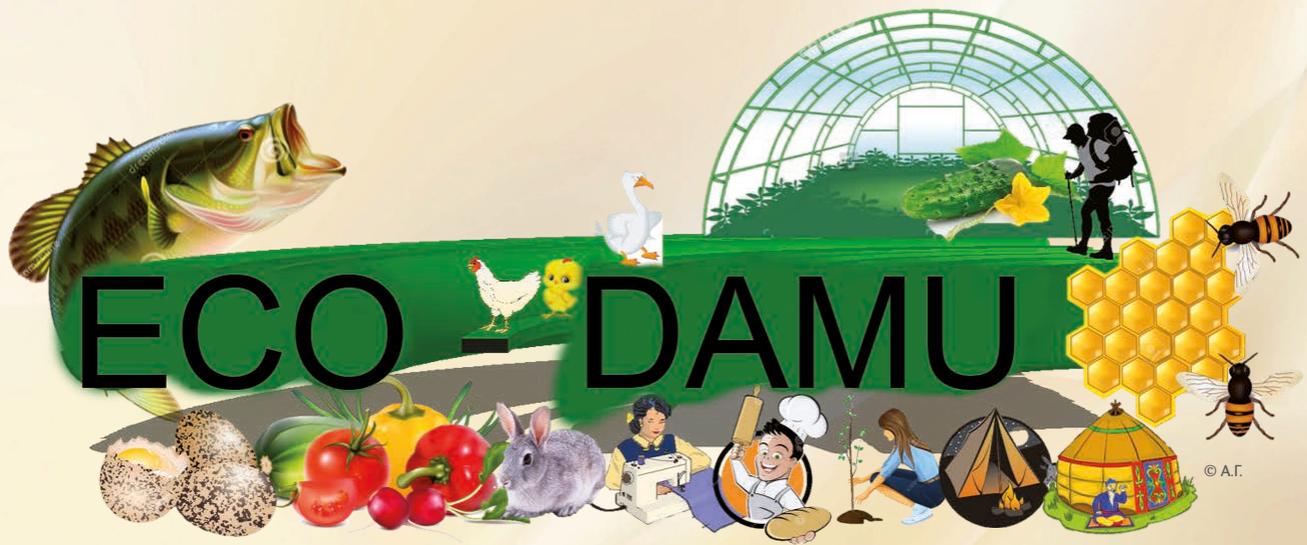
#### Examples:

- procurement of mother bees;
- procurement of beehives, equipment, etc.

## EXPECTED RESULTS

1. **Economic impact:** providing local residents and mono-cities with organic products, creation of alternative modes of production, sustainable businesses, improvement of livelihoods of local people.
2. **Social impact:** creation of additional jobs, de-escalation of social situation, improvement of quality of life, opportunity to maneuver local people, if they lose their jobs, promotion of environmental awareness.
3. **Environmental impact:** reduction of soil degradation, efficient use of water, pesticide-free products, rehabilitation and reduction of pressure on rangelands, use of green technology, increased pollination of agricultural crops and flora in rural area, including PAs, decrease of poaching and logging of riparian forests, reduction of recreational pressure on PAs.
4. **Beneficiaries:** local population, FFSA, PA.
5. **Improvement of the state of biodiversity:** replacement of unsustainable practices with alternative ones will allow to reduce high pressure on biodiversity of desert and semi-desert ecosystems, wetlands, reduce negative impact on the environment by using sustainable and environment-friendly methods of natural resources management, involving local communities in PA management and in activities that bring income on the one hand and ensure a biodiversity dividend on the other.





## KEY AREAS

(challenges, alternatives, recommendations, what nature will eventually have from your participation) to introduce alternative activities and environment-friendly agriculture, forestry, fishery and hunting practices in project areas



# Sustainable development of ecological tourism

Photo Akhmetzhanov G.

One of the urgent problems of lands adjacent to protected areas is spontaneous tourism. Randomly developed tourism results in fires, garbage, bushes that are cut out for campfires, trampled down grass. Harm is caused to unique biodiversity of the land. There is concern about flora and fauna. People, living near reserves and national parks have additional revenues from receiving and accommodating tourists who come to see unique local nature and who do not follow environmental rules.

To address the problem of spontaneous tourism guest houses should be established that will provide tourists with accommodation, meals, horse-back riding, transport to move across the reserve or national park. Manufacture and sale of souvenir products made out of local materials (felt, clay, etc.) will considerably foster attraction of tourists in the region. Purchase of a potter's wheel in this regard would be of interest, as anyone can easily be taught to work with clay with minimum investments, while creating attractive souvenir products. **One of the main areas that foster reduction of illegal poaching, logging of riparian forests, utilization of degraded lands is ecotourism.** Internationally, rural tourism is treated as a sector of the tourism industry focused on the use of natural, cultural, historical and other resources of rural area and its specific features to create an integrated tourism product. International experience shows that development of the rural tourism in the form of small family hotel business and related services is a large socio-economic programme on reorientation of some agricultural population from the production sphere to the service sector. Its goal is to give impetus to development of

Development of ecological tourism not only improves well-being and stable income of local people but also contributes to the protection of nature in their homeland.

the agrarian regions and their population by arranging a new specific sector of local economy. Apart from economic goals, this policy pursues social and cultural goals: to halt degradation of rural areas and growing negative social phenomena, preserve and rebuild national identity, preserve cultural and natural heritage.

Globally unique protected areas, rich cultural and historical heritage, located in a rural area, preserve folklore and craft tradition, rural culture contribute to the development of the sector. National parks and reserves are development centres of rural and ecological tourism. This allows uniting capacities of nature reserves and local people in order to have mutual benefit. In a number of regions there is accumulated experience related to establishment of territorial public committees,

public organizations and other community-based associations who have achieved significant success in generation and promotion of their services in rural tourism area through their own endeavours.

Biodiversity is a crucial resource of humankind: first, genetic resource; second, ensures diversity and normal reproduction of biological resources as well as maintenance of normal ecological state of the environment; finally, third, a unique tourism resource, particularly in the ecotourism area. Therefore, protection and better management of biodiversity and unique nature resources is crucial for us and future generations. Among obvious benefits of the rural tourism are: income growth and better living standards of rural people with a relatively low financial investment; increased investment in infrastructure and development of services in the countryside, upgrading of villages, replenishment





Photo Akhmetzhanov G.



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of local treasury and stimulating organic production of food, preservation of cultural traditions, folklore, national crafts as well as raising the educational level of rural people, local governance initiatives and finally commitment of local people to develop ecological and rural tourism. Protected areas are key contributors to development of the ecological and rural tourism. Interaction

of state institutions (nature parks and reserves) with local people increases tourism potential of the territory and promotes socio-economic development of the region, creates an attractive tourism product and can make a significant contribution to development of domestic tourism and protection of natural and cultural heritage.



Putting alternative  
sources of energy  
and resource-efficient  
technology in place





### Challenge

Huge amounts of sulphur, zinc chloride, lead, etc. are emitted into the atmosphere every day, i.e. factors that adversely affect the climate change, weather and human health are increasing every day. Birds are killed with increasing frequency as a result of injury from exposure to overhead electrical power lines (OHPL).

Grid extension to farms is very costly and that is why is often impossible. Therefore, putting alternative sources of energy and resource-efficient technology in place will allow to cut costs by thousand-fold.

The cause of such environmental problems is the use of solid fuel, natural gas, electric energy by people in their daily lives. For example, a diesel electric generator unit used by herders in distant rangelands emits harmful compounds into the atmosphere and makes a noise, which disturbs birds and animals. In addition, it is expensive type of power generation as it constantly requires refill of costly petrol.

### Alternative

The use of solar and wind energy – alternative sources of energy and resource-efficient technology allows reducing a troubled zone for PAs, the absence of the transmission lines will allow preventing bird deaths on the power lines. Replacement of diesel electric generator units with solar and wind-power units will reduce greenhouse gas emissions. In reality these steps help halt the pollution of the environment.

### Change as a result of your participation

The installation of solar batteries, wind-power units will improve living conditions of herders in distant pastures and fishermen while fishing. Thanks to these measures, local residents can have hot water, dry fruits, illuminate and heat greenhouses, which eventually can help protect forests, reduce carbon dioxide and reduce fuel consumption. The installation of power grids for farms is very costly and that is why it is often impossible. Therefore, putting alternative sources of energy and resource-efficient technology in place will allow to cut costs to one thousandth.



# Sustainable agricultural practices

Crop production, horticulture, vegetable production, including production in greenhouses using advanced green technology



### Challenge

The use of machinery and technology that do not meet the requirements of scientifically based land-use systems, sometimes excessive use of herbicides, pesticides, mineral fertilizers and other chemical agents, non-use of resource-efficient technology, including water-saving technology result in land degradation, development of soil and water erosion, decline in soil fertility and biodiversity as well as ecological problems in crop production.

### Alternative

The cultivation and sale of horticulture products is one the most profitable businesses for those who live in the countryside and have a land parcel. Fruit, vegetable and cucurbitaceous crops are resilient, productive and help return investments in the short term and with high profits. They are sold fresh, frozen, in the form of marinades, therefore cultivation of such crops would be essential all year round.

The use of water-saving technology and organic fertilizers fosters production of ecologically clean vegetable products. Drip irrigation, organic fertilizers (manure) and technology of cultivation under the sheet, which radically improve the state of irrigated lands have become major actors of crop yield rising.

### Change as a result of your participation

Compared to traditional ridge-and-furrow irrigation, the use of water-saving technology helps save irrigation water by 50-60%. Thus, the use of greenhouses with drip irrigation or the vegetable garden under the sheet will enable local communities improve yields of their households, have organic vegetables, foster the early harvest and facilitate biodiversity protection.

The use of water-saving technology and organic fertilizers fosters production of ecologically clean vegetable products. Drip irrigation, organic fertilizers (manure) and technology of cultivation under the sheet, which radically improve the state of irrigated lands have become major factors of crop yield rising.



# Sustainable rangeland management practices





### Challenge

Livestock breeding is the main source of income for residents of villages, therefore livestock numbers grow every year. Thriving herds, random use of rangelands, lack of forage resources, livestock grazing only in lands adjacent to villages lead to depletion and degradation of rangelands and hay fields.

### Alternative

Livestock breeding in distant pastures, keeping cattle in cages in area of up to 1 ha with regular reseeding of perennial and annual forage grasses in those same cages, creation of favorable housing conditions for herders in distant pastures, rehabilitation of

degraded rangelands, transformation of wasteland to productive landscapes by sowing forage crops, pasture rotation, sown pasture lands in cages would improve the situation.

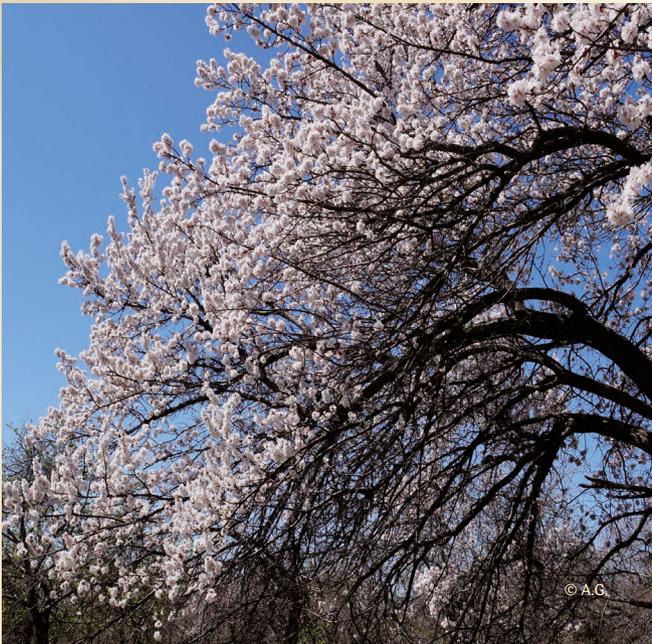
### Change as a result of your participation

Such activities will help restore pastures, which will result in the improved ecology, financial status of rural people through improved livestock productivity, milk and meat yields will increase.

Grazing in enclosures will reduce the number of herders, which will save farmers' costs.



## Sustainable forest management



### Challenge

The Republic of Kazakhstan is a sparsely forested country with a low forest cover (4.2 per cent), which is among the lowest in the world. Deforestation leads to desertification. The logging of riparian forests disrupts the balance of the affected ecosystem and will lead to the extinction of all life in the region. Therefore, establishment of nurseries and their further development is currently becoming ever more relevant in Kazakhstan.

### Alternative

One of the solutions to reduce pressure on forest resources is the establishment of berry fields and nurseries, which produce fast-growing poplars to sell for fuel, industrial wood, collection of forest medicinal herbs as well as bee keeping.

Loss of forests leads to desertification.

### *Change as a result of your participation*

Your participation will reduce of the pressure on forest resources, as forests have multiple benefits for people.

Forests provide valuable construction material – logs and board lumber. Railway sleepers, bunks in underground corridors in mines are made of tree trunks.

Furniture, barrels, plywood, boxes for packing goods used at home, offices, companies are made of wood. Woodpowder is used to produce such an interesting material as contract linoleum for kitchen. Matches and matchboxes, pens and pencils are made of wood.

Papers and books, which are used for writing and reading/ studying are also made of trees. They also provide us with acetic acid, turpentine, tar.

In forest-rich areas it is used as a fuel.

Forests provide people with food: mushrooms, berries, meat of animals and birds. Fur of forest animals is used for manufacture

of warm clothes. A lot of plants grow in forests, which are used to produce various medicines.

Forest soil is covered with moss, fallen pine needles. It traps the water, which comes in the form of rain and snow. Moisture evaporates under the shadow of trees and bushes much more slowly than in the open space. Water penetrated into the ground feeds streams and rivers. Therefore, deep rivers are where there are plenty of forests.

Forests serve to protect fields from drought. That is why forest protective strips are established around fields in arid areas.

Forests are used to combat with loose sands. Roots of trees and shrubs keep growing in sand and retain it near their roots. This prevents winds from shifting sand from place to place and covering fields and gardens with it.

There is little dust in the forest air. It contains more oxygen and less carbon dioxide compared to the air of cities. Forest air is very good for the health. Therefore, children's camps, forest schools for sick children, holiday hotels and health centers are located in forests.





Bee-keeping

### Recommendation

What benefit do bees bring to the nature and people? There always has been vast demand for natural fresh honey either in the food industry or in medicine. Apart from honey, bees provide people with royal jelly, beeswax, propolis, pollen. However, the main benefit of bee keeping (about 80%) comes from honey sale. And what do bees give to plants? The life of bees and flowers is closely connected on planet Earth. They give flowers and pollen, bees pollinate them.

Sustainable development of bee keeping will enable local people to have additional jobs with generation of immediate income.

### Change as a result of your participation

Bee-keeping helps considerably increase the income of local people, prevent forest logging, which will ultimately reduce pressure on forest resources. It has been estimated that benefit from plant pollination by bees and insects is many times greater than the cost of honey collected from around the world. Harvests of seeds and fruit are increased through cross pollination. Over 200 000 of our flora species are reproduced through pollination.



# Sustainable hunting management



### Challenge

The lack of hunting management planning, inappropriate conduction of biotechnical activities, low level of census works, lack of investment in the hunting sector make it impossible to speak about sustainable hunting management.

### Alternative

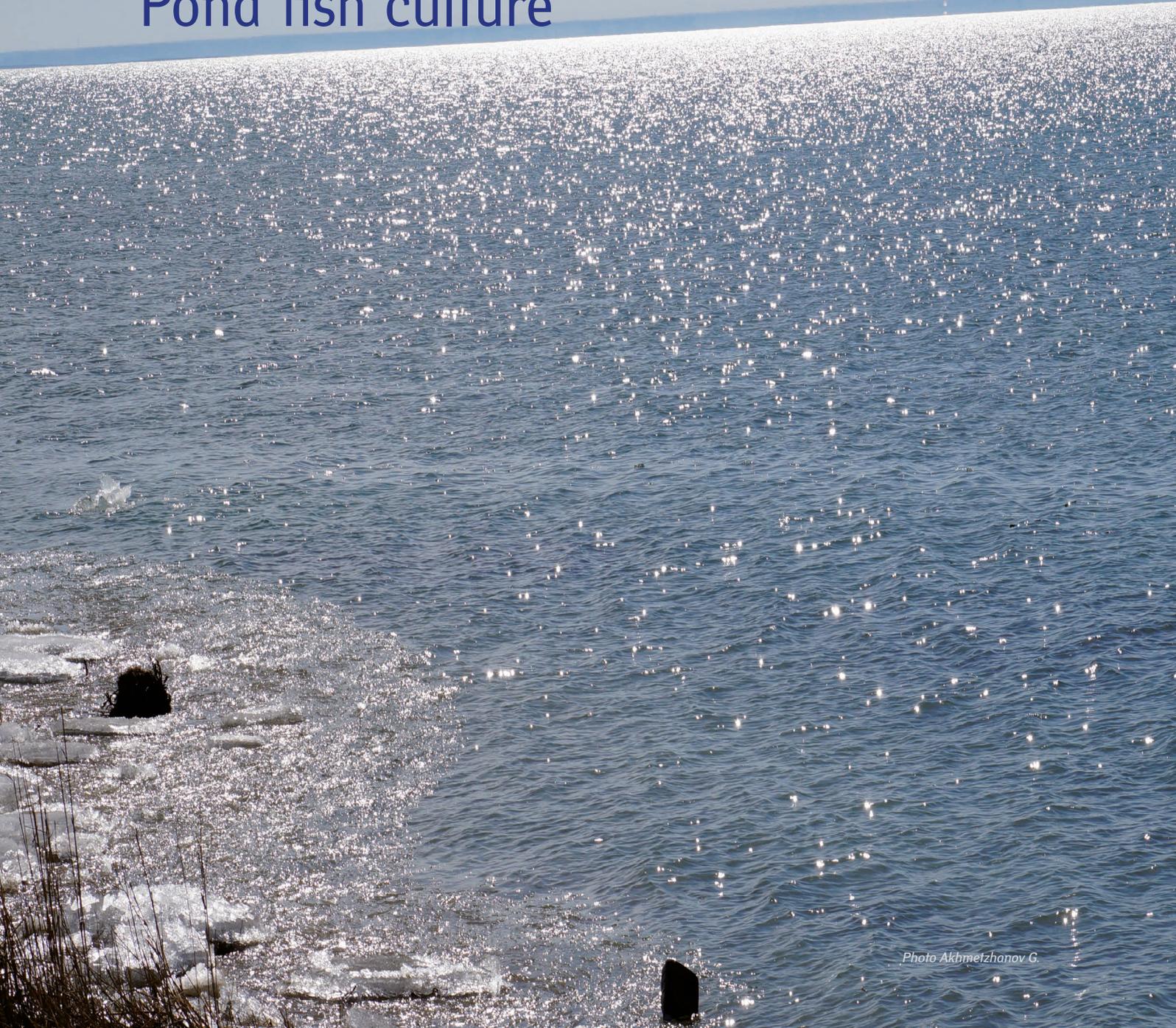
Streamlined approach to more humane hunting management, the conduction of biotechnical activities by reseeding forage crops and nutrition, and development of national types of hunting for demonstration purposes and breeding of national hunting dogs, development of hunting tourism will promote sustainable hunting development.

### Change as a result of your participation

These measures will help the hunting sector gain benefits and foster the development of hunting culture among population, protection of biodiversity, development of humane hunting sector and national types of hunting for demonstration purposes.



# Pond fish culture



*Photo Akhmetzhanov G.*



### **Challenge**

Overfishing by fishermen, without maximum allowable levels, the use of non-prescriptive tools (inadequate design and mesh size) and methods of capture resulted in depletion of fish resources in our waters, loss of high-value fish, decrease in commercial fish stocks. Reduction of fish stocks is causing harm to unique biodiversity of wetlands, exacerbates the disturbance factor for breeding sites of birds, while reducing forage resources of birds.

### **Alternative**

Creation of pond farms is an alternative to unsustainable use of fish resources. At the same time, pond farming is a good prerequisite to develop commercial fisheries. Natural water bodies and small lakes with already formed fish fauna could be used for pond farming, which is very profitable. Restoring pond farms is crucial for conservation, reproduction and sustainable use of water resources of natural water bodies and creation of enabling conditions to develop commercial fisheries.



### **Change as a result of your participation**

Commercial fisheries is a type of economic activity, which provides a good rate of return. In this regard, pond farming could be used to develop ecological tourism, develop sport and amateur fishing, develop sustainable fisheries in general.



Processing of crop  
and livestock products



### Challenge

Rural people increase livestock numbers in their households every year to improve their livelihoods. However, the increase in livestock leads to further desertification of village-adjacent pastures, land degradation as livestock tramples land. Expensive fodder increases the costs for livestock keeping.

### Alternative

One of the options in this case is to increase the productivity of livestock without increasing its number by purchasing superior breed of livestock. Keeping cattle in cages in area of up to 1 ha with regular reseeding of perennial and annual forage grasses in those same cages can help reduce desertification of village-adjacent areas (to get pasture and green summer crops, green mass for hay, haylage, sylo, grass meal). This increases livestock's daily weight gain, increases the weight of livestock for slaughtering, gives better quality of meat, better by-products of 1-2 category (tongue, liver, heart, livers, trimmings), technical raw materials (skins, bones, horns, etc.) One more alternative to expensive livestock breeding is rabbit breeding and poultry farming.



### Recommendation

It is well-known that processing of products generates more profit than the sale of raw materials. Sale of fruit juice is more profitable than the sale of fruit itself. The question is what business will generate a steady income for villagers. Businessman's steady income directly depends on demand for goods or services, which his/her enterprise offers. Whatever local people do, be it processing of vegetables and fruit, bottled kumis or shubat, opening of minibakery, confectionery shops, processing of dairy products is a promising and dynamic segment of market. Processing of agricultural products contributes to economic development of a particular village, whereas conservation of biodiversity surprisingly depends on the state of the economy.

Businessman's steady income directly depends on demand for goods or services, which his/her enterprise offers





# Rabbit breeding

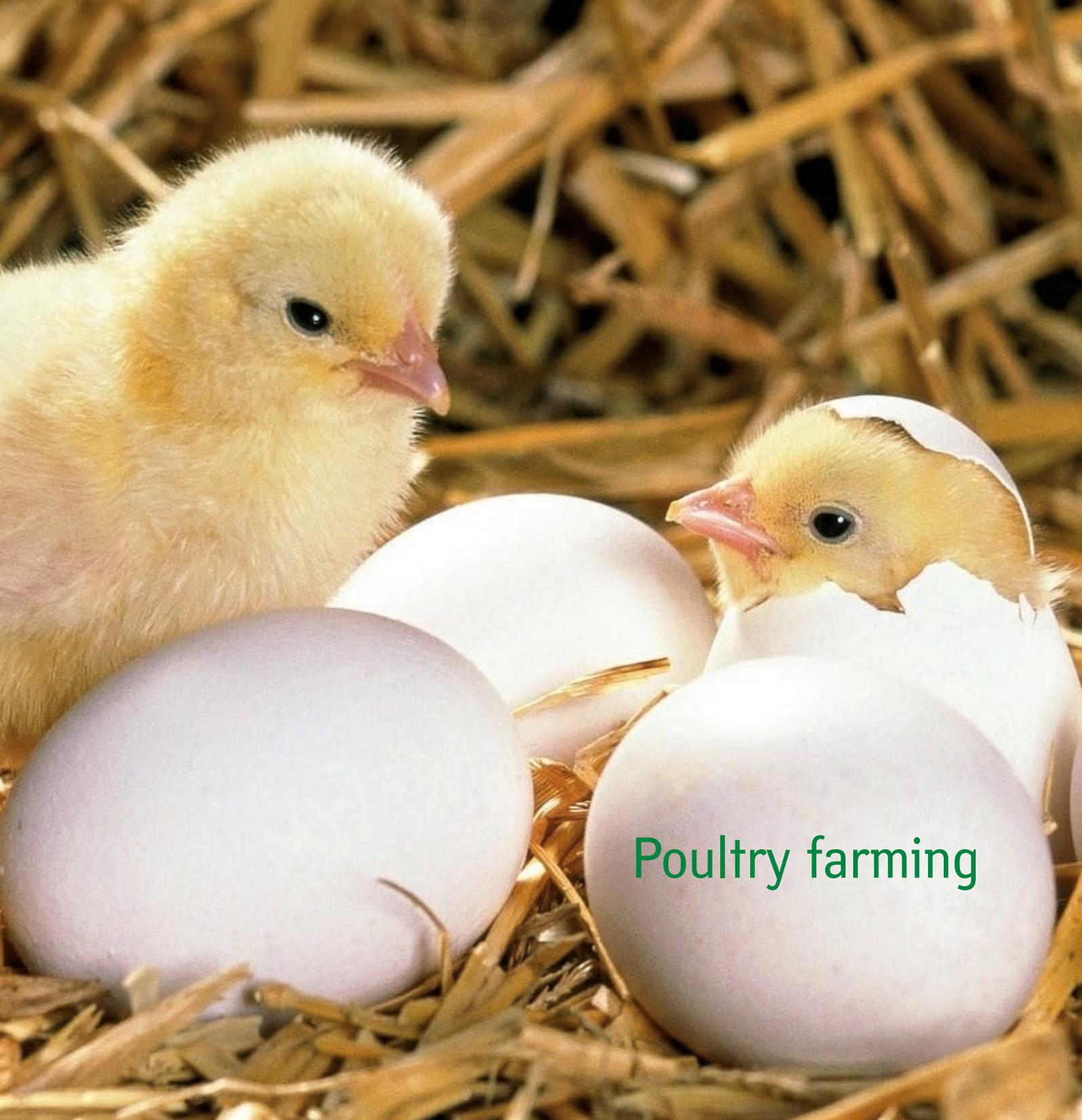


## **Alternative**

Rabbit breeding is a promising animal industry. Rabbit meat has extremely high nutritional qualities. Rabbit meat has more vitamins and minerals than any other type of meat. Rabbit breeding enables to produce various products: processed rabbit fur, used in manufacturing various coats, heats, collars and jackets.

## **Change as a result of your participation**

Rabbit breeding is a cost-effective business. It allows quick recovering investments through rapid growth of baby rabbits. If there is a growing demand for rabbit meat in the restaurant business, market is expanded. In this regard, development of rabbit breeding will allow to prevent further degradation of pastures and hayfields through partial reorientation of livestock breeding on rabbit breeding.



Poultry farming



### Alternative

Home geese, ducks, chickens are the most profitable poultry in the subsidiary economy. They are easy to care for, give lots of meat and fat, perfect down and feather. Additional benefit: sale of eggs and chickens. In addition, poultry manure could be sold that can be used as a fertilizer of household gardens. The advantage of poultry development is that it can be turned into home-based business, i.e. all family members can be involved and money will not be spent for employees. Manufacturing of items made out of down: pillows and blankets can also be developed. Poultry farming is a cost-efficient and profitable business, therefore it can compete with livestock breeding. Degraded rangelands can be restored, pressures on village-adjacent pastures can be reduced by reducing livestock numbers and increasing poultry stocks, while developing family business at the same time.

## CONCLUSION

The Eco-Damu microcredit scheme for 2014-2024 is implemented by the UNDP in Kazakhstan in collaboration with MOA's Forestry and Wildlife Committee and the Fund for Financial Support of Agriculture JSC. The scheme is designed for rural people who live near protected areas.

To date in the first phase, the project has supported the initiatives of local people to develop alternative activities and environment-friendly agriculture and fisheries as well as sustainable ecological tourism within project areas near PAs worth 275 325 000 KZT (around 885.200 US dollars).

A total of 83 projects are implemented, including 36 in Almaty Region, 39 in Kyzylorda Region, 8 in Mangystau Region. Local people have gained access to microcredit financing and permanent jobs (175 jobs). It should be noted that the private and public sector of micro-finance institutions is not ready to lend to borrowers, whose project proposals, for instance, are aimed at development of ecotourism or sustainable business. Interest rates of credit organizations are very high, only profitable businesses are financed. The microcredit scheme "Eco-Damu" is designed for marginalized segments of the populations, therefore annual remuneration rate is the lowest in the country (4 per cent). The

Transition to environmentally safe sustainable development is currently becoming a priority area in Kazakhstan's development strategies. Modern environmental policy of the country is aimed at achieving sustainable nature resource management, which is one of the underlying factors for the sustainable development of the country.

only problem is collateral, which rural people not always have. The implementation of the scheme will significantly impact the upgrading of knowledge and skills of rural communities to develop own business accompanied with environment-friendly business.

The support of environment-friendly activities of projects will contribute to enhanced living standards of local communities around PAs, improved socioeconomic situation of the region through the involvement in conservation of biodiversity.

The project will demonstrate the opportunity to develop alternative activities, which offer local people to give up unsustainable business in favour of other income-generating activities through successful projects after the phase I is completed. Sustainable and environment-safe methods of nature resource management will be prioritized.

This short guide is aimed at conservation of Kazakhstan's biodiversity. We shared with you how each proposed economic activity can benefit rural communities and save biodiversity.

We hope that this publication will be useful for local communities, NGOs, PA staff and other stakeholders who wish to participate in the Eco-Damu microcredit scheme.

The project of the Government of the Republic of Kazakhstan “Improving sustainability of the PA system in desert ecosystems through promotion of biodiversity-compatible livelihoods in and around PAs”, financed by the GEF and supported by the UNDP

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