

Project Proposal under the Community-Based Climate Change Adaptation Program

PROJECT BRIEF

1. **Project Title:** Sustainable Water and Land Management in the Arid Zone of **South Kazakhstan area** under the Increased Climate Aridity Conditions
2. **Project Site:** Nurtas village, Turkestan, South-Kazakhstan Oblast, Republic of Kazakhstan
3. **Proposer:** Biogene PA
36 Babai Batyr St., Turkestan 161200, South-Kazakhstan Oblast, Republic of Kazakhstan
E-mail: serik-06@mail.ru
Phone: 8-72533-43532
Mobile phone: 8-705-7041429

Biogene Public Association is a non-profit public organization established in 2009.

The goal of Biogene P A is to evoke the public environmental awareness and integrate intellectual and financial resources of the public to achieve the objectives that have a positive impact on the environment and society.

4. The project goal is to demonstrate the new agricultural practices to reduce the risks in the face of a changing climate conditions through **introduction of innovative methods of water use and stabling goats as alternative to sheep breeding** given the increasing climate aridity.

5. **Authorized Representative:** S. Makashev

6. **Stakeholders:** Zhailma PA, Sole Proprietor Bekbayev, farmers B. Baibolov, K. Beisenbayev
Nurtas, village, Turkestan, South-Kazakhstan Oblast

7. **Starting Date:** **July, 2011**

8. **Project Duration:** **18 months**

9. **Total Project Cost:** **US\$76,980**

10. **Amount Requested:** US\$34,000

11. **Proponent's Input:** **US\$7,960**

12. **LC's Input:** US\$35,020

13. Project Summary

The project site is located in the Syrdarya River valley. In soviet times, the farms existing in the area in question were well organized, had the network of irrigation channels and vast areas of irrigated lands under corn, barley, wheat and lucerne. Cattle farming activities were well developed in addition to the natural grazing lands, the farms used to make hay, conserve silage and fodders. To date the area is facing the problem of water deficit, both irrigation water (irrigation channel are abandoned and destroyed) and precipitation (snow and rains). For this reasons, the land for farming is scant, pastures and near-the-village lands are in a deplorable state. The members of the local communities breed cattle that are unsystematically grazed near the village all-the-year round. The fertile layer of land is under heavy pressure resulting in degradation and erosion. The lands are overgrazed with predominantly low-value vegetation unfit for cattle feeding.

In addition, the project site may be defined as a typical semi-desert where the climate factor (rise in temperature and reduction of precipitation level) changes the pastoral species composition (the share of ephemeral and ephemeroïd plants has reduced in the structure of pastoral vegetation) – spring and summer component. The share of draught resistant vegetation unfit for cattle feeding (*Pegonum gormola*) is growing. The crop yields and the plant biomass is reducing. The overall picture is rather dismal, even without giving specifics. The climate change is manifested in the the reduced content of moisture in the soil thus giving rise to the shrinkage of the pastoral vegetation cover, reduction in the yields of pastoral vegetation that in turn aggravate the problem of social-economic status of the local community members.

Without the urgent measures the fertile layer of land will be eroded and the biological and economic productivity will be reduced significantly.

The proponents propose a number of activities as listed below focusing on the sustainable land and water resources management in the arid area and farms management under the climate change conditions:

1. Planting lucerne on 50ha of arable lands and within the household plots of the LC members to establish the forage base. To ensure the rational use of water the project will use ground waters and apply the sprinkling irrigation system, a more sustainable technology in the context of growing climate aridity.
2. Transition from the conventional cattle farming (cows, sheep and horses) to the more economically and environmentally beneficial breeding of a specialized milk-producing Saanen breed of goats. The breed is the biggest one; the weight of male goats is 65-70kg, ewes - 50-55kg. The milk productivity is high; after lambing the milk yield reaches 4.5-6kg; milking period can last up to 5 months providing the adequate maintenance conditions. The annual milk yield makes about 600-700 liters. The early maturity of Saanen breed is rather high and by the end of the year the lambs reach the full growth.
3. Construction of goat breeding mini-farms to demonstrate the benefits of **goat breeding** as compared to the conventional cattle farming (co-financing) to the local community members.
4. In autumn of year 1 of the project implementation the LC members conserving forage for the drylot feeding of goats will obtain the special milk-producing Saanen breed of goats to be maintained at the mini-farms under the project organizers' information support (maintenance, feeding, veterinary activities etc.).
5. The LC members will develop a new strategy of pastoral management (identify the seasonal sites for rotation and organize grazing activities). **The main foal of the strategy is a gradual transition from sheep grazing to goats stabling.**

It may be concluded from the above characteristics of goats that goats are more beneficial to the local community than sheep (the meat yield is higher) or cows (the milk yield is the same from cows and goats due to poor pastoral forage capacity). In addition, goats will be maintained in special dry-lot areas in order to reduce the grazing load on the near-village pastures of the project site and ensure the positive impact on the land conditions. The project demonstration of the benefits of the transition to goat breeding will encourage the other LC members to the goat breeding business. Said activity will ensure the additional revenue for the LC members. In addition, lucerne growing will enhance the soil fertility and improve its mechanical composition. In future the LC members may cooperate to organize plantations of lucerne and forage crops covering large areas.

The project preserves the LC's opportunity of dealing with the conventional cattle breeding under the climate aridization conditions leading to further land degradation.

The activities envisaged by the project will enable to avoid the negative consequences by reducing the load of unsystematic grazing and conserve the cattle, while the community members will be able to deal with the conventional cattle farming.

1.0. PROJECT RATIONALE

1.1. Community/ Ecosystem Context

The project site is located 30km from Turkestan. Ushkaik rural district incorporates 4 villages (A. Usenov, Kyzyl Sharua, Otkomsovkhoz, Nurtas) comprising 940 households and totaling 5842 rural inhabitants. The district has 18,371 heads of cattle, 4,529 sheep and goats, 509 heads of horses. The lands contain 117,690 ha.

Nurtas village which population makes about 1000 people (200 households) has 5000 ha of the former pastures and 2000 ha of derelict plough-land. The local community of Nurtas village where the project will be implemented are not able to deal with land farming due to the lack of irrigation water; water volumes supplied from the Karachik River are only just enough for 1 or 2 irrigations of 50-60 ha of lucerne fields. The main livelihoods are the livestock products that are based on the pastoral forage resources. The uncontrolled grazing practices within the project site cause irrecoverable changes of soil and vegetation thus leading to the reduction of biological productivity of pastures. Given the arid conditions with the intensifying climate aridity, such changes may result in the total destruction of the biosphere capacity; the territory may turn to desert. Most of the community's lands (about 65%) are affected by desertification. The active and often irrational economic activities of the local communities made a real threat of the disruption of environmental balance.



1.2. Climate Context

The project site (PS) is characterized by extremely continental climate. Winter is mild, with frequent thaws. The average temperature in January is minus 2-4°C; summer is dry and hot; in July the temperature ranges from +30° to +40°. The total above-zero temperature for the vegetation period of pastoral plants makes 4370°C. In cold months the total below-zero temperature reaches 1450°C. The snow cover depth does not exceed 5-7 cm. The groundwater occurrence ranges between 15 and 25 meters.

It follows from the analysis of the meteorological data provided by the nearest station (Kyzylorda Oblast) that before 2000 the average precipitation level for many years was 125 mm per year of which 65 mm occurred in cold period. Within the last decade the average precipitation level for many years has dropped to 98mm with only 41 mm occurring in winter.

1.2. The Context of Climate Impacts

Winter is the main period of accumulation of soil moisture in semi-desert where precipitation (snow) is not exposed to evaporation and is absorbed by the soil when the weather gets warm, while the summer rains are mostly evaporated instead of being absorbed by the soil to feed the plants. So, the reduction of winter precipitation is an extremely adverse factor that influences the accumulation of the productive soil moisture and the quantity of forage formed by the pastoral vegetation.

Under the conditions where the atmospheric moisture (with precipitation being the only source of moisture replenishment) is the constraining factor of the normal growth and development of plants, such overall and seasonal reduction of precipitation demonstrate the ongoing climate change and the growing aridization. A good example is the year of 2008 where precipitation was zero in spring and early summer when the winds intensify.

The climatic factor (i.e. temperature increment and reduction of precipitation) can change the pastoral species composition (ephemeral and ephemeroïd plants will decline in the yield structure); this refers to the spring and summer component. The share of draught resistant vegetation (*Pegonum gormola*) unfit for cattle feeding will grow. The crop yield of plant biomass will decline. The grazing period on one grazing site will reduce and the herds will need to be moved to some other pasture.

Everything what is said above has been confirmed by studies and observations done by the scientific department of the Karatau Nature Reserve, in conjunction with the World Wildlife Fund (WWF) during the project "Biodiversity conservation and integrated river basin management in the valley of the Syr Darya River," implemented from 2008 to 2011. The annual monitoring studies have demonstrated that only 32 days were with precipitation (7-10 days in spring-summer period) during 2010. Proportion of forage plants decreases, area of weeds increases on the entire project area. In spring 2011, the greater part of forage crops hasn't risen. Besides, saline soil area increases. The project activities will reduce the anthropogenic pressure on pastures and will allow them to gradually recover.

The climate change towards aridization will increase the environmental risks. The main project thesis is to ensure an environmentally sound grazing pattern when using the pastoral resources by implementing the new approaches, developing the non-grazing cattle farming system, establishing the fodder base and planting the cultivated varieties of perennial grasses.

1.4. Project Approach

The main project hypothesis is to ensure the environmentally sound grazing pattern when using the pastoral resources by implementing the new approaches, developing the non-grazing cattle farming system, establishing the fodder base and planting the cultivated varieties of perennial grasses. The activities will mitigate the climate change risks as given in the table below:

Climate change	Impact on community and	Project activities to mitigate the climate change
----------------	-------------------------	---

forecast	ecosystem	impacts
1. Reduction of average annual precipitation	Reduction of soil moisture; growth of erosion risks resulting in reduced soil fertility	Planting lucerne that is rather drought-resistant The use of moisture-saving technology will supply moisture to soil
2. Increased risks of draughts	Increase of evaporation and soil drying out; degradation of vegetation; reduction of yield.	The establishment of seeded grasslands will facilitate to preserve the moist microclimate in soil and conserve its fertility.
3. Increase of dry hot winds	Drying out of fertile soil layer; intensified dust storms	Lucerne plantations as well as regulated and reduced grazing will enable to restore the pastoral vegetation, consolidate soil and reduce the impact of dry hot winds

2.0 THE COMMUNITY'S OWNERSHIP OF THE PROJECT

2.1. Project Formulation

The community will benefit from the more sustainable agricultural practices to be implemented and reduction of vulnerability to the climate change, especially in connection with the growing soil erosion. In addition, the more sustainable project activities will facilitate to conserve and further develop the skills gained. The workshops will be organized on the district level with the involvement of the members of neighboring communities.

The approach proposed by the project in relation with the forage base development and transition to goat breeding for the purposes of adaptation to the climate change and the lack of water resources has been discussed at the rural meeting of Nurtas LC. The project idea and the activities proposed have been fully supported by the local inhabitants.

The project innovation is that in addition to the fact that the project facilitates to reduce the LC dependency on the climate risks, the new technologies and approaches to cattle breeding will be implemented and the forage base will be established thus enabling the local community to adapt to the increased climate aridity. In addition to the adaptation and environmental benefits the project activities will also generate the economic benefits for the local inhabitants.

2.2. Project Implementation

The activities proposed by the project will bring about the actual benefits for the local community members and more sustainable use of the land and water resources in the arid zone and under the conditions of growing soil erosion. The project will enable the local community to deal with the traditional grassland farming in the conditions of climate aridization and pastoral degradation.

The project goal will be achieved by implementing the objectives as described below:

Objective 1: (co-financing): Development of economically and environmentally beneficial non-grazing Saanen goat breed as an alternative to the conventional grazing cattle farming

Output 1.1. The mini-farms have been designed along with the goats maintenance conditions

Output 1.2. 4 mini-farms for goats have been established at the household plots of the local community members

Output 1.3. Comparative analysis of the price offers for Saanen breed; 60 goats have been purchased

Output 1.4. Feeding ration and a set of veterinary activities have been developed.

Objective 2: (CBA-funded activities directly related to the climate change risks): Development of the demonstrational sites of seeded grasslands in order to enhance the forage base of the local community's livestock

Output 2.1. Pre-seeding processing of lucerne and barley seeds (Professor Ashirov's technology) raising the yield capacity of agricultural crops. Increase in crop yields is achieved due to activation of groups of enzymes to ensure rapid growth of the fetus and strong root development, increased synthesis in the bud gibberellina and active transport, which influences the rate of cell division. This provides an active start for the plants during germination and its rapid transition to autotrophic type of food.

Output 2.2. The field has been prepared and lucerne has been seeded covering 50ha or the agricultural lands and the household plots of LC members

Output 2.3. Irrigation performed in compliance with the lucerne farming techniques

Output 2.4. Lucerne hay collected.

Objective 3: (CBA-funded activities directly related to the climate change risks) **Rational groundwater management for the irrigation needs with due regard to the climate changes within the project site**

Output 3.1. 4 wells have been drilled to develop the irrigation system for lucerne plantations

Output 3.2. The piping has been laid and sprinklers have been installed on 4 sites

Output 3.3. The LC members and village inhabitants have been trained in practicing the sprinkling irrigation technique.

Objective 4: (co-financing from NGO Biogen (applicant): **Seasonal grazing patterns have been developed for the rational use of lands**

Output 4.1. 110 ha of pastures maintained by the local community have been surveyed (at the beginning and end of the project) and the pastoral forage value has been identified

Output 4.2. The system of rational grazing has been implemented for the cattle owned by the local community within the grassland covering 110ha

Output 4.3. Zhailma PA and Biogene PA have organized the meetings, discussions and field days for the inhabitants of the neighboring villages dedicated to the adaptation methods under the climate aridization conditions.

Objective 5: (CBA-funded activities): **Environmental awareness activities and sharing the project experience among the LC members of the neighboring villages**

Output 5.1. The local community members have been informed of the increasing risks connected with the progressive climate change

Output 5.2. The training has been provided to form the clear-cut understanding among the LC members of the relation: conditions of pastures – quantity and quality of forage – wellbeing of the community members

Output 5.3. Information publication has been published (format A4, colored photos) in Kazakh and Russian for the purpose of agricultural extension and dissemination of the outcomes gained in respect of the advantages of non-grazing goat breeding and sprinkling irrigation as well as the influence of the method proposed on the LC vulnerability reduction to the climate change risks, and PV film production

Output 5.4. The demonstrational workshop has been organized housed by Zhailma PA to spread the project ideas

Output 5.5. The project experience has been disseminated via mass media to be replicated by the other local communities.

2.3. Phasing-out Mechanism, Sustainability

The project sustainability during implementation and after the project will be guaranteed by the motivation of the Nurtas village inhabitants. On one hand, the wellbeing of the local community members will be improved; after the project the LC members will make profit from the sale of milk and meat. On the other hand, the pressure of degraded lands will be reduced.

The sprinkling irrigation system to be established on the project site will support good yields of forage crops independent from the level of summer precipitation.

Biogene and Zhailma public associations will continue the search of the projects, other sources of funds to expand the activities started within the project. One of the objectives of the associations will be the capacity building of the LC members of the rural district by facilitating the sustainable practices of water, soil and biodiversity conservation.

3.0 DETAILS OF THE PROPONENT

3.1. Details of the Proponent and its Capacity

Biogene Public Association is a non-profit organization. The association has been registered with the Ministry of Justice of the Republic of Kazakhstan in 2009. It incorporates scientists, research workers, holders of Master Degree of International Kazakh-Turkish University named after Kh. Yasavi.

Its main goal is to raise the environmental awareness of the society and combine the intellectual and financial resources to meet the goals that bring about the positive and beneficial influence on the nature and society.

The association has implemented a number of projects including: 1) WWF project: «Development of the Model of Sustainable Use of Fish Reserves in Pre-delta Lakes of Syrdarya» for the sum of 3000

Euro; 2) WWF project: «Construction of Greenhouse in Abai Village to Facilitate the WWF Forest School Development» for the sum of 3000 Euro; 3) WWF project: «Reduction of Load on the Ecosystems of Karatau Mountains through the Alternative Cattle Farming Practices: Establishment of the Demonstrational Site». The members of Biogene PA are the active participants of WWF; they promote WWF's goals and objectives among the public, students and school children (Clubs of WWF Friends).

Biogene PA will be responsible for the financial expenses, obtainment and application of the technologies, organization and outreach of the project ideas.

Zhailma PA is a non-profit non-governmental organization operating as from 2009. It incorporates the village inhabitants of Ushkaik rural district who are directly interested to improve the conditions of pastures and near-village lands since they maintain cattle in their households. The association members are actively involved in the activities related to the advocacy of the statutory goals and objectives among the inhabitants and school children of the rural district.

The main statutory goals are: environmental protection; protection and conservation of flora and fauna; amplification of endangered plants and animal species; combining financial and intellectual resources in the sphere of land use.

Zhailma PA will be responsible for the LC involvement and their participation in all the activities, for the organizational and other project-related works.

For the period of operation the association has organized a number of training workshops, took part in the round tables held in the oblast and local akimats, and performed consultations in 20 farms.

4.0. PROJECT SUMMARY

4.1. Goal, outcomes and outputs:

Project goal: Introduction of innovative methods of water use and goats stabling grazing instead of traditional sheep breeding as alternative in terms of increased aridity of climate
Objective 1: (co-financing): Development of economically and environmentally beneficial non-grazing Saanen goat breed as an alternative to the conventional grazing cattle farming
Output 1.1. The mini-farms have been designed along with the goats maintenance conditions
Output 1.2. 4 mini-farms for goats have been constructed at the household plots of the local community members
Output 1.3. Comparative analysis of the price offers for Saanen breed; 60 goats have been purchased
Output 1.4. Feeding ration and a set of veterinary activities have been developed
Objective 2: (CBA-funded activities directly related to the climate change risks): Development of the demonstrational sites of seeded grasslands in order to enhance the forage base of the local community's livestock
Output 2.1. Pre-seeding processing of lucerne and barley seeds (Professor Ashirov's technology) raising the yield capacity of agricultural crops
Output 2.2. The field has been prepared and lucerne has been seeded covering 50ha or the agricultural lands and the household plots of LC members
Output 2.3. Irrigation performed in compliance with the lucerne farming techniques
Output 2.4. Lucerne hay collected
Objective 3: (CBA-funded activities directly related to the climate change risks) Rational groundwater management for the irrigation needs with due regard to the climate changes within the project site
Output 3.1. 4 wells have been drilled to develop the irrigation system for lucerne plantations
Output 3.2. The piping has been laid and sprinklers have been installed on 4 sites
Output 3.3. The LC members and village inhabitants have been trained in practicing the sprinkling irrigation technique
Objective 4: (co-financing): Seasonal grazing patterns have been developed for the rational use of lands
Output 4.1. 110 ha of pastures maintained by the local community have been surveyed (at the beginning and end of the project) and the pastoral forage value has been identified
Output 4.2. The system of rational grazing has been implemented for the cattle owned by the local community within the grassland covering 110ha
Output 4.3. Zhailma PA and Biogene PA have organized the meetings, discussions and field days for the inhabitants of the neighboring villages dedicated to the adaptation methods under the climate aridization conditions
Objective 5: (CBA-funded activities): Environmental awareness activities and sharing the project experience among the LC members of the neighboring villages
Output 5.1. The local community members have been informed of the increasing risks connected with the progressive climate change
Output 5.2. The training has been provided to form the clear-cut understanding among the LC

members of the relation: conditions of pastures – quantity and quality of forage – wellbeing of the community members
Output 5.3. Output 5.3. Information publication has been published (format A4, colored photos) in Kazakh and Russian for the purpose of agricultural extension and dissemination of the outcomes gained in respect of the advantages of non-grazing goat breeding and sprinkling irrigation as well as the influence of the method proposed on the LC vulnerability reduction to the climate change risks, and PV film production
Output 5.4. The demonstrational workshop has been organized housed by Zhailma PA to spread the project ideas
Output 5.5. The project experience has been disseminated via mass media to be replicated by the other local communities

4.2. Time-table of the Project Activities

Months	2011						2012												
	j	a	s	o	n	d	j	f	m	a	m	j	j	a	d	o	n	d	
Objective 1	■	■	■	■	■	■			■	■	■								
Output 1.1	■	■	■																
Output 1.2	■	■	■	■	■	■													
Output 1.3	■	■	■						■	■	■								
Output 1.4	■	■	■	■															
Objective 2				■	■				■	■	■	■	■	■					
Output 2.1									■										
Output 2.2				■	■				■	■									
Output 2.3										■	■	■	■	■					
Output 2.4										■	■	■	■	■					
Objective 3	■	■	■	■						■	■	■	■	■					
Output 3.1	■	■	■	■															
Output 3.2	■	■	■	■															
Output 3.3				■						■	■	■	■	■					
Objective 4	■	■	■	■	■	■		■				■			■	■			
Output 4.1		■	■												■	■			
Output 4.2															■	■			
Output 4.3	■			■	■	■	■					■			■				
Objective 5		■	■	■	■	■	■	■	■	■	■							■	■
Output 5.1				■	■					■	■							■	■
Output 5.2						■	■	■											
Output 5.3																	■	■	
Output 5.4																	■		
Output 5.5		■	■						■	■									■

4.3. Risks and Barriers

The following are the potential risks of the project implementation:

- Changes in the prices of materials and equipment to be used by the project;
- Exchange rate fluctuations;
- Breach of contractual terms by the suppliers of materials and equipment.

To overcome said risks the implementing parties will perform the marketing analysis and outsource the reliable partners. The implementing parties will provide the detailed reporting with all financial documentation for each financial disbursement allocated for the project.

4.4. Plan of Monitoring and Evaluation

The project implementation will be measured based on the indicators as listed below:

- The number of Saanen goats, milk yield, weight gain;
- Acclimatization of goats;
- Changes in soil moistening and mechanical composition as compared to the baseline conditions to be determined at the startup of the project;
- Conditions of LC’s pastures as compared to the baseline conditions to be determined at the startup of the project;

- Welfare of LC members after changing the land and water resources management strategy as compared to the baseline conditions to be determined at the startup of the project.

These indicators will be analyzed on the background of the meteorological data of the nearest station in order to measure the changes in the quantity of the products made against climate conditions.

ADAPTATION INDICATORS TO BE MONITORED:

The project will also be assessed based on the following Country (Kazakhstan) Strategy Indicators (CBA):

- The number of implemented methods/ approaches focused on mitigation of risks related to the climate change and incorporated as part of the activities on the natural resources sustainable management;
- The number of tested approaches to the natural resources sustainable management to improve the local livelihoods and protect the resources;
- The number of rules prepared/adopted during the project;
- The area covered by the sustainable management of water and land resources;
- The number of participants (households) benefiting from the sustainable resources management (the growth of income or provision of food security etc.).

The items of adaptation indicators are listed below:

- (1) The project will use 2 technologies and 2 innovations (raising the new breed of goats, sprinkling irrigation, pre-seeding processing of lucerne seeds, seeding technology) as part of the activities for the sustainable farming practices on the project site
- (2) The climate-sustainable farming activities will be implemented at the mini-farm and household plots of the local community members of the project site
- (3) The booklet will be published in Kazakh and Russian dedicated to the sustainable natural resources management by shifting to non-grazing maintenance of goats and implementing the drip irrigation (sprinkling) as the methods to combat the climate risks
- (4) 20 households will benefit from the project in the first year of the project implementation; further the project will involve up to 50 households
- (5) 50 ha of planted lands and 110 ha of regulated grazing will be managed on a sustainable basis as a result of the project
- (6) The following three rules: the Agreement with Deputy Akim of Turkestan B. Syzdykov, the Agreement with Akim of Ushkaik Rural District B. Ibadullayev and the Deed on Water Use with Yug-Vodkhoz (Southern Water Management Department) will be adopted on the project site.

The global environmental benefits (GEB) will be measured by the area of land involved in the sustainable land management as a result of the project activities and implementation of the method of LC sustainable development. Notably, the following GEF indicators as applied by SGP GEF will be used:

1. The area (ha) of degraded lands rehabilitated by the project
 - a. The target is 50 ha of planted lands and 110 ha of the organized grazing
2. The area (ha) of lands on which the sustainable management has been implemented within the project
 - a. The target is 50 ha of planted lands and 110 ha of the organized grazing
3. The total value (in USD) of products manufactured within the project using the ecosystem resources
 - a) With the average yield of 150 dt/ha, the estimated yield of hay is 750 tons (from 50 ha) x KZT15 / 148 ~ US\$76,000
 - b) In the first year 60 goats are expected to produce the animal yield of about 100 goatlings x US\$50 = US\$5,000; the average daily milk yield from one goat is three liters x 50 goats x 72 days = 10,800 l/year x KZT150 = US\$10,946.
4. The number of innovations and new technologies developed and implemented within the project.
 - a. The target is 2 innovations and 2 technologies.

The demonstrational workshop will be organized for the inhabitants of Nurtas village as well as the field training; the information will be disseminated on the rational use of lands and pastures; the booklet will be published to disseminate the project experience.

4.4.1. Vulnerability Reduction Assessments (VRA)

The Vulnerability Reduction Assessment (VRA) will be performed at the planning stage, in the mid term and at the end of the project.

The following questions will be used to determine the vulnerability reduction assessment (VRA):

- ✚ How serious is the increased aridization (temperature increment, reduction of precipitation (snow, rain)) to your livelihood?
 - ✚ If the unfavorable years with increased temperature and reduced precipitation become normal, how serious will this impact your livelihood? **whether the hay reduced, cattle production reduced, etc.**
 - ✚ What are the constraints to the implementation of water-saving irrigation techniques? How serious are those barriers?
 - ✚ Will the community be able to raise the goats and maintain the irrigation system after the project?
- The questions will be discussed at the workshop of LC members of Nurtas village.
Below are provided the H-forms to be used for discussion.

It needs to be noted that the questions will contain the vulnerability assessment scale ranging from 1 to 5 for the convenience of discussion with the local community.

H-form to assess the vulnerability reduction (VRA) for the project

Reasons of negative answer	1. How serious is the increased aridization (temperature increment, reduction of precipitation (snow, rain)) to your livelihood? 0 5	Reasons of positive answer
1.	<i>How could this assessment be improved?</i> 1.	1.

Reasons of negative answer	2. If the unfavorable years with increased temperature and reduced precipitation become normal, how serious will this impact your livelihood? 0 5	Reasons of positive answer
1.	<i>How could this assessment be improved?</i> 1.	1.

Reasons of negative answer	3. What are the constraints to the implementation of water-saving irrigation techniques? How serious are those barriers? 0 5	Reasons of positive answer
1.	<i>How could this assessment be improved?</i> 1.	1.

Reasons of negative answer	4. Will the community be able to raise the goats and maintain the irrigation system after the project? 0 5	Reasons of positive answer
1.	<i>How could this assessment be improved?</i> 1.	

The scores obtained during the discussion will be summarized in the following table:

VRA Reporting Form		
No. Indicator	Initial assessment	Final assessment
Indicator 1		
Indicator 2		
Indicator 3		
Indicator 4		
Total score (VRA)		

4.5 Project management:

4.5.1. Management

Serik Makashev is the person responsible for the project implementation. Mr. Makashev has a university degree, extensive experience in agriculture and dissemination of the agricultural experience (replication of the pre-planting processing technology throughout Kazakhstan; cooperation with WWF). Therefore he is a suitable candidate and is able to lead the relevant activities (the resume is attached hereto). In addition, within the recent year and a half Mr. Makashev had meetings with B. Ibadullayev, Akim of Ushkaik rural district, the management of the district akimat, the members of targeted communities and he has established good business relations with the project implementing parties and partners. S. Makashev has managed the activities at the project planning stage, organized the community meetings and facilitated fund raising (financing). Mr. Makashev will present the progress reports on a quarterly basis to the GEF Small Grants Program National Coordinator (SGP GEF) Ms. Yekaterina Yushenko. So, the project monitoring and evaluation will be on a regular basis.

4.5.2. Relationships and duties of the proponent and the partners

S. Makashev will closely cooperate directly with the local community members (Sole Proprietor Bekbayev, farmers B. Baibolov, K. Beisenbayev, T. Suinbai). He will liaise with the management of the other organizations to obtain their technical or other assistance. Biogene PA will support the project management by allocating the man-hours for the director position. Co-financing will be allocated for the soil preparation, plantation of lucerne, design and construction of the mini-farm, purchase of goats, arrangement of seasonal grazing, procurement of equipment and agricultural machinery, while CBA financing will be focused on the climate management component.

Project Cost

The project requires US\$78,580; the amount requested is US\$34,000.

The project co-financing will be provided by Biogene PA, Zhailma PA and LC members. The amount of co-financing is US\$44,580. The project is supported by the district and rural akimats. School teachers and other specialists living in the village will be actively involved in the project activities.

5.0 Project Cost and Other Sources of Funding

5.1. Total project cost and amount requested:

Total project cost: **US\$76,980**

Amount requested: US\$34,000

	Units	CBA input, \$	Proponent's input, \$		LC members' input, \$		Total, \$
	(Description)		In cash	In kind	In cash	In kind	
Objective 1							
Output 1.1	Design of mini-farms and goats maintenance conditions		200				200
Activity 1.1.1	Development, design of mini-farms (agreement with the design company)		200				200
Output 1.2	4 mini-farms for goats have been constructed at the household plots of the local community members				7500	1000	8500
Activity 1.2.1	Materials				5500		5500
Activity 1.2.2	Labor cost				2000	1000	3000
Output 1.3	Comparative analysis of the price offers for Saanen breed; 60 goats have been purchased		200		13000		13200
Activity 1.3.1	Business trip of the manager and biology expert		200				200

Activity 1.3.2	Purchase of 60 goats at 200\$				12000		12000
Activity 1.3.3	Transportation of goats				1000		1000
Output 1.4	Feeding ration and a set of veterinary activities have been developed		300				300
Activity 1.4.1	Development of seasonal rations and the necessary veterinary vaccinations (agreement with the veterinary station)		300				300
Objective 2							
Output 2.1	Pre-seeding processing of lucerne and barley seeds (Professor Ashirov's technology) raising the yield capacity of agricultural crops	250	100	200			550
Activity 2.1.1	The Agreement of the Use of Invention for Pre-seeding Processing of Seeds, 50 ha x 5\$	250	100	200			550
Output 2.2	The field has been prepared and lucerne has been seeded covering 50ha or the agricultural lands and the household plots of LC members	9260			2600	6990	18850
Activity 2.2.1	Purchase of lucerne seeds, kg/ha 50 ha x 50USD=2500	5000					5000
Activity 2.2.2	Purchase of barley seeds, kg/ha 50 ha x 25 USD=2500	1250					1250
Activity 2.2.3	Soil processing and preparation /plowing (25%): 50 ha x 66,67\$ x (25%)	830				2300	3130
Activity 2.2.4	Chiseling (25%) – 50ha x 66,67\$ x (25%)	830				2300	3130
Activity 2.2.5	Cutting the irrigation ditches (25%) – 50ha x 41,67\$ x (25%)	520				90	610
Activity 2.2.6	Plantation of lucerne (25%) – 50ha x 66,67\$ x (25%)	830				2300	3130
Activity 2.2.7	Fertilizers				1000		1000
Activity 2.2.8	Depreciation and repair of agricultural machinery and equipment				1600		1600
Output 2.3	Irrigation performed in compliance with the lucerne farming techniques				200		200
Activity 2.3.1	Sprinkling irrigation (electricity cost) and conventional irrigation (water consumption cost)				200		200
Output 2.4	Lucerne hay collected				320		320
Activity 2.4.1	Mowing, harvesting and transportation of lucerne				320		320
Objective 3							

Output 3.1	Drilling of wells at the household plots	7440				200	7640
деятельность 3.1.1	Drilling (4 items) in LCs backyards 30m x 28\$ x 4 Casing (production and establishment) 30m*4 items*34\$ =4080	3360 4080				200	3560 4080
Output 3.2	Piping works and installation of sprinklers	3800		100	2300		6200
Activity 3.2.1	Selection and procurement of sprinklers (30%) 20pcs x 4sites x 20\$	1600					1600
Activity 3.1.2	Purchase of piping (50%) 1600 m x 1\$ =500\$	1600			1600		3200
Activity 3.1.3	Purchase of electric pumps (40% of the price)	300			400		700
Activity 3.1.4	Electric grids, assembly, installation and commissioning (50%)	300		100	300		700
Output 3.3	The LC members and village inhabitants have been trained in practicing the sprinkling irrigation technique (field days, mini-workshops, assessments)	200		100	0	100	400
Objective 4							
Output 4.1	110 ha of pastures maintained by the local community have been surveyed (at the beginning and end of the project) and the pastoral forage value has been identified		100	150		200	450
Activity 4.1.1	The expert on pastures will examine the LC's pastures and identify their forage value		100	150		200	450
Output 4.2	The system of rational grazing has been implemented within the grassland covering 110ha		600	150		100	850
Activity 4.2.1	Implementation of the system of rational use of pastures (vehicle, fuel)		600	150		100	850
Output 4.3	Meetings, discussions and field days for the inhabitants of the neighboring villages			150		100	250
Activity 4.2.3	The meetings, discussions and field days will be organized for the LC members to explain the goal and objectives faced by the community under the climate aridity conditions			150		100	250
Objective 5							
Output 5.1	Environmental awareness activities and dissemination of experience		100			50	150
Activity 5.1.1	Publications in mass media (newspapers etc.)		100			50	150
Output 5.2	Training to form the clear-cut understanding among the LC members of the relation:	200	0	110	0	60	370

	conditions of pastures – quantity and quality of forage – wellbeing of the community members						
Output 5.3	Output 5.3. Information publication has been proposed (format A4, colored photos) in Kazakh and Russian for the purpose of agricultural extension and dissemination of the outcomes gained in respect of the advantages of non-grazing goat breeding and sprinkling irrigation as well as the influence of the method proposed on the LC vulnerability reduction to the climate change risks, and PV film production	1500			0		1500
Output 5.4	3 workshops dedicated to VRA	2559		300		300	3159
Activity 5.4.1	Organization of workshops 427\$ x 3 = 1200\$ Lunch, coffee break 20 persons x 13,34\$ = 267\$ Handouts 20 x 3\$ = 60\$ Transport 100\$	1281		300		300	1881
Activity 5.4.2	Experts 1 st and 2 nd DSA (2 persons, 3 times, 5 days, 17\$ - 2 MCI) = 510\$ Accommodation (16\$ x 2 persons x 3 times x 3 days) = 288\$ Travel expenses (80\$, 3 times, 2 persons) = 480\$	1278					1278
Output 5.5	The project experience has been disseminated via mass media to be replicated by the other local communities	0	100		0		100
	Publication of leaflets; discussions at the meetings and on the local TV channel		100				
	Project management activities (ToR is provided below)	4860	4500		0		9360
	Monitoring and evaluation	800	0		0		800
	Experts	800					800
	Transport	600					600
	Accommodation	371					371
	Communications services	500	500				1000
	Bank fees	360	0		0		360
	Contingencies	500	0		0		500
Total		34000	6700	1260	25920	9100	76980