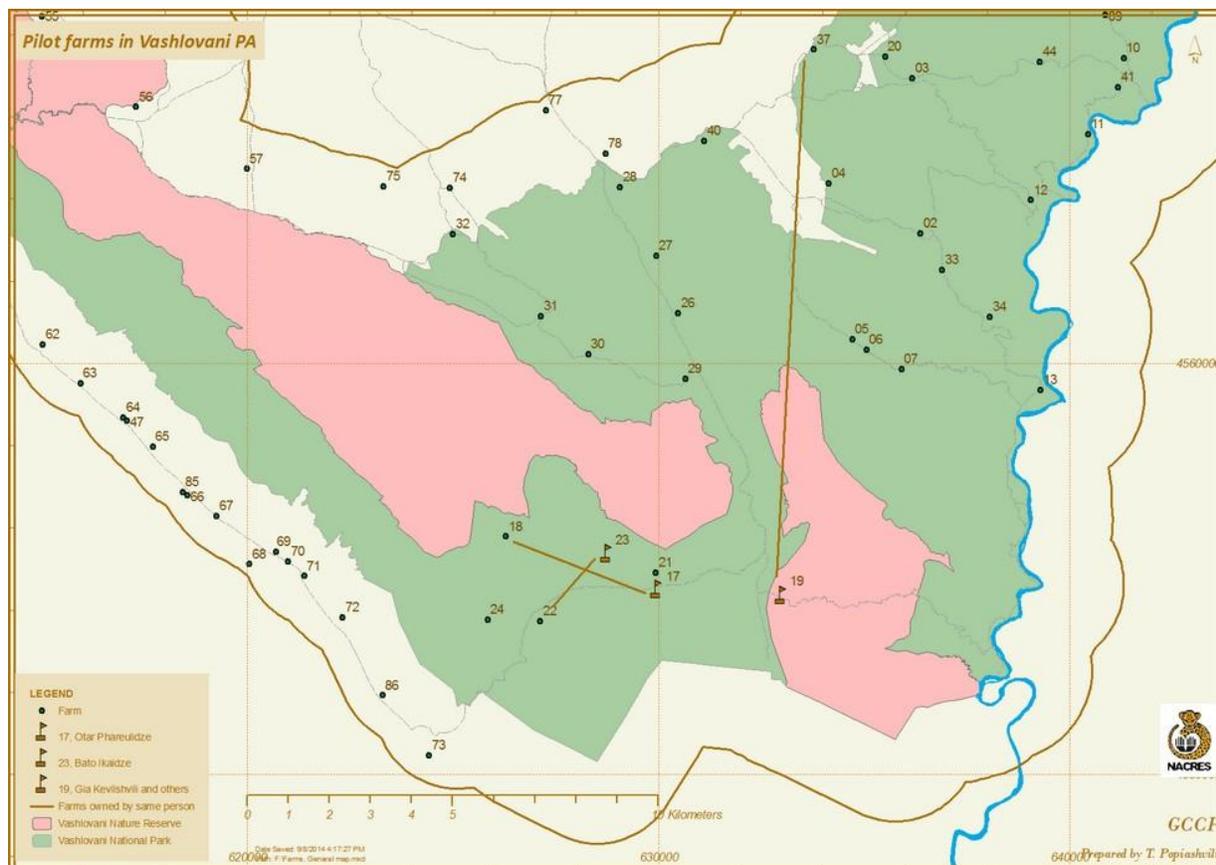


## Annex 5

### Description of Pilot Activities

For the farm number 17 on the map (number of sheep 1200) and the farm number 23 on the map (number of sheep 1600)



#### **Pilot Activity I: Improving water supply of Farms through the rainwater catchment**

**Issue:** Impact of intense flock traffic around water points and along migratory routes.

**Objective:** reduce intensity of traffic by increasing number/geographic dispersal of water points.

#### **Justification:**

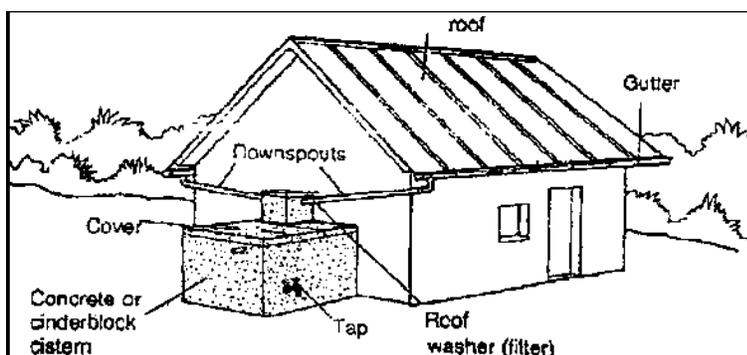
Several alternatives were discussed together with an invited expert – hydro engineer. The expert together with NACRES overviewed several alternative options that would provide water to six key farms located on a migratory route. The alternatives included: a) collection of water from a river by a pump into reservoir; b) collecting water from a nearby lake through the pipes into a reservoir and then individual farms c) rainwater catchment. The criteria of sustainability of the solution, water provision regularity, easy exploitation, and low cost were considered among others. The rainwater catchment was identified as the most suitable alternative for piloting, with lower investment and maintenance costs.

#### **Brief Description of Measure/s:**

The water will be captured from the roofs of pilot farms. The rain water via gutters, in-line diverters, and downspouts will flow into tanks/reservoirs with the capacity of five tons. The roofs

of farms might need repairing to ensure flawless collection. The following measures/activities will be carried out:

- Inspection of roofs
- Necessary repairs
- Installation of pipes and reservoirs



*Schematic of a Typical Rainwater Catchment System.*

*Picture Credit: Organization of American States; Sourcebook of Alternative Technologies for Freshwater Augmentation.*

	<b>Intervention logic</b>	<b>Indicators</b>	<b>Means of Verification</b>	<b>Assumption</b>
<b>Results</b>	Reduce intensity of traffic by increasing number/geographic dispersal of water points.	Regenerated vegetation cover on migratory route pressured from intense flock traffic	Pasture productivity assessments conducted by Vashlovani Protected Areas	Good maintenance practices by farmers and favorable weather conditions for accumulation of run-off water
<b>Outputs</b>	Farms equipped with rainwater catchment systems with capacity to store 5 tons of water			
<b>Activities</b>	Inspection of roofs; necessary repairs; installation of pipes and reservoirs			

## **Pilot Activity II - Electric Fencing and other protective measures**

### Issues:

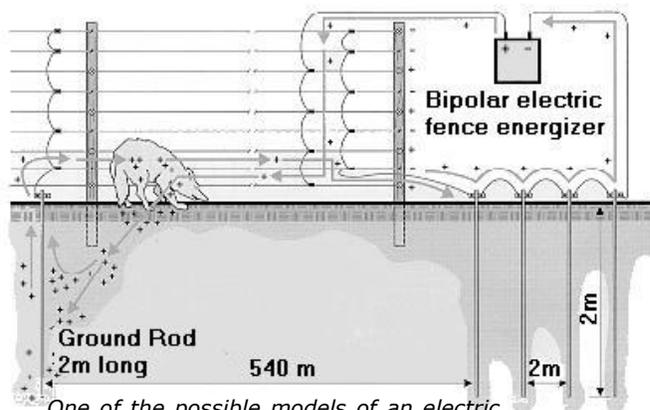
Livestock loss to predation resulting in economic burden for sheep owners and herders, and subsequent human wildlife conflict within the protected areas of Vashlovani.

### Objective:

Protect sheep from predation; reduce the economic burden caused by livestock loss and subsequently the consequences of human-wildlife conflict; increase tolerance to wildlife and more positive attitudes towards conservation and goals of protected areas.

Justification:

Electric fences are an important tool for protecting livestock and if managed and maintained properly, can result in up to 90 per cent reduction in sheep predation losses.<sup>1</sup> The advantage of this measure is that it is easily adapted to most livestock situations. While electric fences have been used mostly to protect pasturing sheep, they are an effective measure for more specific protection such as sheep in times of lambing.



One of the possible models of an electric fence. Picture Credit: Government of Alberta, Canada

Brief Description of Measure/s:

Fencing the entire area of a farm is too costly and will restrict the free movement of wildlife. Therefore, we recommend that electric fences shall be used for targeting smaller space to protect small flock of

sheep left on a farm during a daylight (in case of sick or weak sheep) and for sheep left within pen during the nighttime (fencing pens). Both types of fences will operate on one more powerful charger rather than several of them with weaker capacities. The charger will operate on a central 220 V solar battery installed within a farm.

*Fencing pens:* In most cases, pens in VPAs are about 100 M<sup>2</sup> meters in area. Additional wooden poles (for every 2 meters) are necessary around pen fences to install electric fences (they must not be installed on existing pen fences). An electric fence made with seven single strands of wire is suitable as well as high-tensile mesh wire.

*Fencing small area for sick or weak sheep:* The area for sick or weak sheep is relatively bigger, at least four hectares or even larger to minimize the pressure on pasture area. The outer perimeter of pasture area is the same as that for fencing pens. The outer fence should serve the purpose of keeping away predators. Another, lower fence which is also electric should be within the outer layer and divide the area in one-hectare sections. The latter should have a function separating groups of livestock from each other.

Complimentary to fences can be predator nightlight scaring devices (operating on photo sensors and on solar power). They are installed on fences and provide additional protection.

	<b>Intervention logic</b>	<b>Indicators</b>	<b>Means of Verification</b>	<b>Assumption</b>
<b>Results</b>	Fences are known to effectively reduce wildlife-caused sheep	Lower sheep mortality reported by sheep owners	Survey of sheep owners/herders (baseline survey to be conducted)	The shepherds keep interest in maintaining the fences and protected areas administration looks after

<sup>1</sup> A study conducted by Alberta Agriculture and Rural Development, 1970.

	mortality and thus human-wildlife conflict. The Measure is relatively inexpensive.	attributed to wildlife.	at the start of the pilot phase).	the infrastructure during summer pasturing.
<b>Outputs</b>	Two pilot farms equipped with protective electric fences; shepherds and herders' skills in activities needed for the maintenance of the infrastructure.			
<b>Activities</b>	Determining right areas for fencing together with shepherds; Installation of fences around pens; Installation of fences around small areas for weak or sick sheep; Training of shepherds/sheep herders in utilization and maintenance of fences; Development of utilization and maintenance manual for shepherds.			

### **Pilot Activity III: Energy Efficiency and Infrastructural Improvements**

Issues: Absence of fuel-wood for sheep herders, inability to satisfy energy needs of an effective farm during winter pasturing, and pressure on key species of flora within VPAs; Infrastructural challenges such as leaking roofs, escaping heat, deteriorated fences of pens, etc., reluctance by experienced and capable shepherds to accept jobs due to harsh conditions.

Objective: Provision of alternative energy sources for farmers, mainly through solar-operated batteries for light, for small fridge for veterinary supplies, etc., and energy efficient stoves for heating. Infrastructural improvements for more efficient farming, and betterment of visual features for the integrity of the landscape of protected areas.

Justification: Currently, the protected areas administration grants farmers with small amount of dead wood for heating. This is not enough to satisfy the needs of farmers during the entire winter pasture period. In addition, farmers have no source of energy for bare essentials such as basic lighting and telephone charging for communication. Furthermore, the energy source is needed for any protective measures (e.g., lighting scare devices and electric fences). Experienced and more capable shepherds often refuse to care for sheep due to challenges of outdated infrastructure and absence of basics results. Thus, sheep owners end up hiring less qualified persons.

Energy efficiency measures will decrease expenses of farmers on energy needs and lift off the pressure from protected areas. The infrastructural improvements will ensure better-equipped farms, which in turn will help to attract more qualified shepherds and ensure more effective management.

Notably, the local population (both in Dedoplistkaro and Alvani) has underscored the importance of energy efficiency measures in the area and has identified the promotion of alternative energy sources including solar energy as one of the priorities for conserving the ecosystem in the area.<sup>2</sup>

#### Brief Description of Measure/s:

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<sup>2</sup> Detailed Assessment of the Natural Resources of the Lower Alazani-Iori Pilot Watershed Area, 2013, INRMW Georgia Program <http://www.globalwaters.net/wp-content/uploads/2014/03/Technical-Report-14-Detailed-Assessment-of-Natural-Resources-of-Lower-Alazani-Iori-Pilot-Watershed-Area-ENG.pdf>

*Provision of energy efficient sources:*

- Solar operating batteries to supply bare essentials listed above
- Energy efficient stoves

*Other infrastructural Improvements:*

- Roofing of the house and shelter with environmentally-friendly material
- Window and door installation
- Plastering of walls
- Ceiling
- Bathroom installation and arrangement
- Electrical wiring
- Repairing bread baking units
- Cleaning of the yard area
- Temporarily waste disposal arrangement
- Fencing of pen and small areas for sick sheep (with traditional materials)
- Guarding cabin arrangement

	<b>Intervention logic</b>	<b>Indicators</b>	<b>Means of Verification</b>	<b>Assumption</b>
<b>Results</b>	Alternative energy sources will lift the pressure off from natural resources within VPAs and along with better infrastructure will strengthen farming management practices.	Lower reported illegal harvesting of natural resources by VPA administration; increased efficiency of farming due to better means of communication, energy provision, and improved infrastructure.	VPA monitoring data (limited but basic monitoring conducted by VPAs); survey of pilot farmers about energy needs (baseline survey to be conducted at the start of the pilot activities).	The shepherds keep interest in maintaining the infrastructure, solar panels, and energy efficient stoves.
<b>Outputs</b>	Two pilot farms have alternative energy sources: solar batteries, energy efficiency stoves, and basic infrastructural improvements.			
<b>Activities</b>	<ul style="list-style-type: none"> <li>• Installation of solar operating batteries to supply bare essentials listed above;</li> <li>• Energy efficient stoves;</li> <li>• Other infrastructural Improvements (Roofing of the house and shelter with environmentally-friendly material; Window and door installation; Plastering of walls; Bathroom installation and arrangement, etc).</li> </ul>			