აგრარული ბიომრავალფეროვნების მდგრადი მართვა სამცხე-ჯავახეთის რეგიონის მოწყვლად ეკოსისტემებსა და სასოფლო დასახლებებში

Sustainable Management of Agricultural Biodiversity in Vulnerable Ecosystems and Rural Communities of Samtskhe-Javakheti Region in Georgia

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გლობალური გარემოს დაცვის ფონდის (GEF) მიერ დაფინანსებული პროექტი (2020-2026). განმახორციელებლი ორგანიზაცია: გაეროს გარემოს დაცვის პროგრამა (UN Environment - UNEP). პროექტის მიმღები მხარეები: საქართველოს გარემოს დაცვისა და სოფლის მეურნეობის სამინისტრო და სამცხე-ჯავახეთის მუნიციპალიტეტები. პროექტის აღმასრულებელი ორგანიზაცია: კავკასიის რეგიონული გარემოსდაცვითი ცენტრი (REC Caucasus)

(პროექტის ს/ნ : GEF 10829)

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(*GEF Project ID: 10829*)

Document Ref.: 3-1-3-1 - TR - 2023-12 – AGROBIODIVERSITY AND AGROTOURISM BASELINE STUDY

MID-TERM TECHNICAL REPORT

ON DEVELOPMENT OF METHODOLOGY, QUESTIONNAIRE, INTERVIEW SCHEDULE AND GUIDE FOR SURVEY TO CONDUCT STUDY ON AGROBIODIVERSITY AND AGROTOURISM

(*FOR BASELINE STUDY TO COLLECT SOCIAL, ECONOMIC AND GENDER-RELATED DATA TO ASSESS ROLE OF AGROBIODIVERSITY AND AGROTOURISM IN WELLBEING AND ENVIRONMENT SUSTAINABILITY IN SAMTSKHE-JAVAKHETI REGION – WITH IDENTIFICATION OF SPECIFIC GENDER DIFFERENCES, INCLUDING WOMEN AND MEN'S DIFFERENT ROLES, NEEDS, PRIORITIES, CAPACITIES AND VULNERABILITIES*)

December, 2023 – English Version

შუალედური ტექნიკური ანგარიში

მეთოდოლოგიის, კითხვარის, გამოკითხვის გრაფიკისა და სახელმძღვანელო მითითებების მომზადება სამცხე-ჯავახეთის რეგიონში აგრობიომრავალფეროვნებისა და აგროტურიზმის სფეროში საბაზისო კვლევის ჩატარების თაობაზე

2023 წლის დეკემბერი, ინგლისურენოვანი ვერსია

კავკასიის რეგიონული გარემოსდაცვითი ცენტრი
მცხეთის ქ. 48/50, ქ. თბილისი 0179
The Regional Environmental Centre for the Caucasus
48/50 Mtskheta Str., 0179 Tbilisi, G

Component 3.	**Increased awareness of the importance of agricultural biodiversity, capacity building of the key stakeholders and knowledge management**
Outcome 3.1.	**Stakeholders apply their increased capacity and knowledge and take actions on sustainable management of agricultural biodiversity**
Output 3.1.1.	**National capacity developed to mainstream and promote agricultural biodiversity and agrotourism**
Activity 1 [3.1.3.1]a	***Development of questionnaire, interview schedule and guide for baseline study on agrobiodiversity and agrotourism*** **(*for conducting survey for /baseline/ study to collect social, economic and gender-related data to assess role of agrobiodiversity and agrotourism in wellbeing and environment sustainability in Samtskhe-Javakheti Region – with identification of specific gender differences, including women and men's different roles, needs, priorities, capacities and vulnerabilities*)**

1. Background

1.1. Task

This report was prepared in line with the project Activity 3.1.3.1a under Component 3 and related status of deliverables.

Report contains necessary information to evaluate the state of implementation of the Activity with respect of the project activity plan and how far project's targets have been achieved.

1.2. Implementation Period

Implementation of this Activity has been started since December 2023.

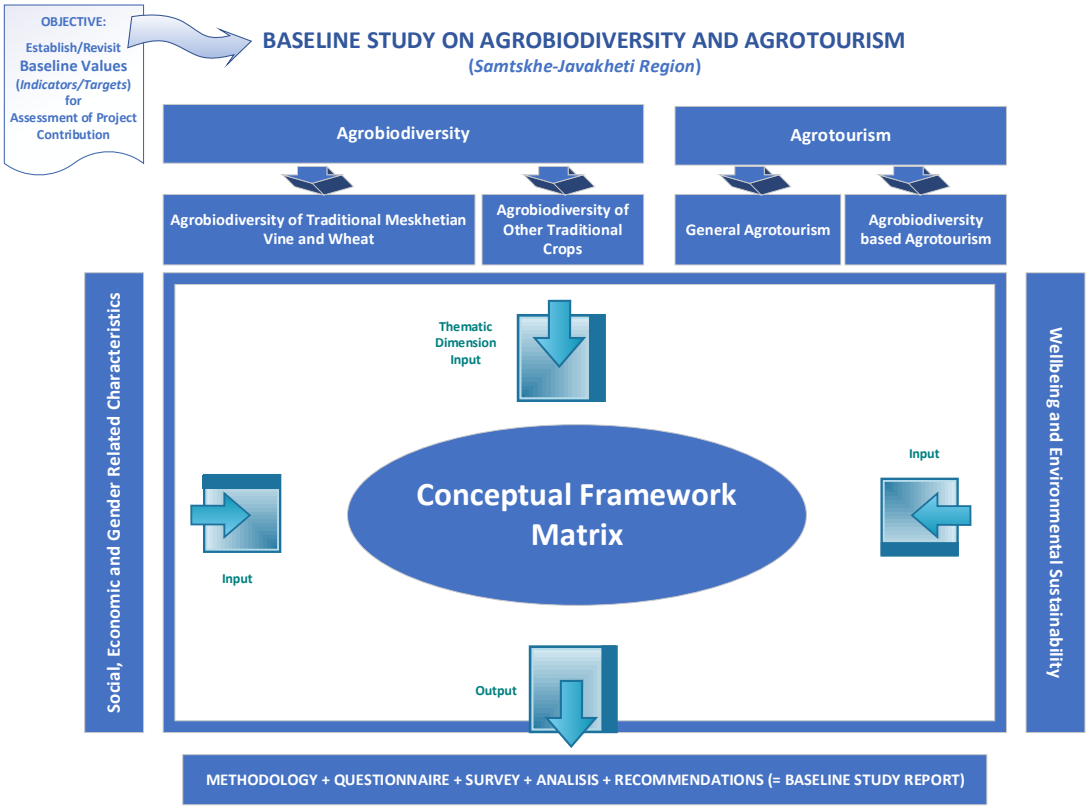
2. Objectives of the Baseline Study

The overall objective of the baseline study was formulated as follows: to establish baseline values for the assessment of contribution of the Project during the Project implementation, by the end of the Project and the in post-Project period.

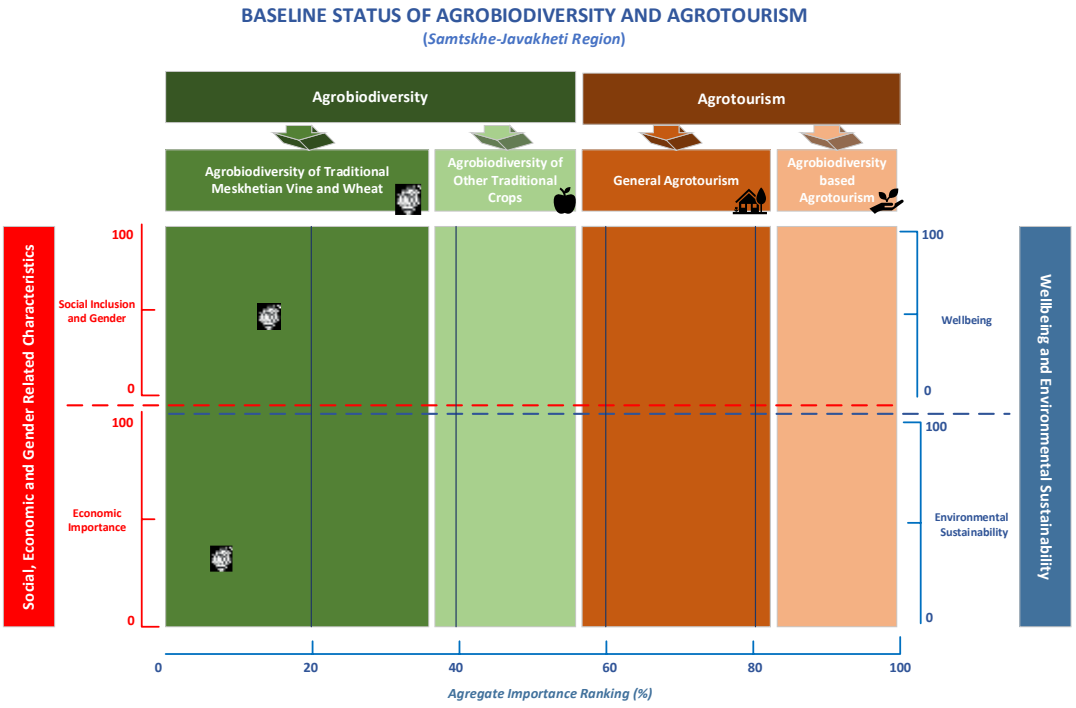
The specific objectives will include:

- To establish baseline values for the Outcome and Output level indicators/targets included in the Project M&E Plan at mid-term and project-end results levels.
- To revisit the existing proposed Outcome and Output level indicators to make them more focused, relevant and measurable.
- To revisit, if necessary, the targets stated in the Project CEO Endorsement Document initially submitted.
- To develop common understanding and acceptance among the Project Team and key stakeholders, particularly for project participants, of the project indicators/targets, how to measure them, and how the information will be used.

Conceptual Framework Matrix of Baseline Study on Agrobiodiversity and Agrotourism was formulated in figure below:



Expected measurable elements of the Baseline Status of Agrobiodiversity and Agrotourism for Samtskhe-Javakheti Region is shown in figure below:



3. Status of Implementation

Completion of the Study is scheduled in the first half 2024.

During the reporting period some Methodological Materials (such as preliminary lists of Meskhetian local biodiversity varieties – Attachment 1) and Preliminary Outline for the Baseline Study were prepared (Attachment 2).

Implementation status of this Activity as of end of reporting period expressed in % is 10%.

ANNEXES

Annex 1. Preliminary List of Traditional Meskhetian Aboriginal Crops other than Vine and Wheat Landraces/Varieties

A. Fruit Trees [*A. ხეხილის ჯიშები*]

A.1. Apple Varieties [*A.1.ვაშლის ჯიშები*] (*Malus Mill.*)

1. **Abilauri** [*აბილაური*] – a vigorous tree, quite resistant to pests and disease, 10-12m height, bearing fruits on a periphery; fruits - middle-size, green-yellowish or often red-cheek, stored until April-May, able to recover from bruises on its own, after a certain period; well-transportable; in 1880 was awarded a Golden Medal in Paris. At present, single trees (80-100 years old) are found in old orchards of villages in Adigeni and Aspindza regions.
2. **Soba** [*სობა*] – quite a vigorous tree, less resistant to pests and disease, sensitive to mange; fruits - high-built, narrowed in the bottom, redness frequently passes to flesh as well, consumable upon harvest, stored until January; at present single trees are found in old orchards of villages in Adigeni and Aspindza regions; under high risk of extinction.
3. **Turashauli** [*თურაშაული*] – a tree with an average strength of growth, with oval top (crown), sensitive to pests and disease; fruits - quite large, high-built, red, redness frequently passes to the flesh; early fruit variety, harvested in August-September, stored for 2-3 months.
4. **Shaqara** [*შაქარა*] – a tree with a weak strength of growth, with pyramidal top (crown), sensitive to disease; fruits - relatively small, completely red, redness passes to flesh as well, quite sweet, consumable upon harvest, harvested in September, stored for 2-3 months, less transportable, found in villages of Aspindza and Akhaltsikhe regions.
5. **Shaqarnabada** [*შაქარნაბადა*] – a tree with an average strength of growth, with oval top (crown), pests and disease resistant; fruits - large, high-built, with red stripes, firm flesh, sweet, harvested in September, stored until February-March, well transportable, is a good “market fruit”; single trees are found in villages of Adigeni, Akhaltsikhe and Aspindza regions.
6. **Rakraka** [*რაკრაკა*] – a tree with an average strength of growth, with pyramidal top (crown) bearing fruits on periphery; fruits – small, oblong, narrowed in the bottom, with a lot of red stripes, sometimes completely red; seeds in the seed capsule move freely (rattling), that is why it is called “Rakraka” – rattle; fruits - harvested in the end of August - beginning of September, consumable upon harvest, stored until December; under high risk of extinction, are found in villages of Akhaltsikhe and Adigeni regions.
7. **Rdzevashla (synonym: Sudalma)** [*რძევაშლა (=სუდალმა)*] – a tree with an average strength of growth, with open top, pests and disease resistant, fruits – low-built, narrowed in the bottom, mostly green, with reddish upper part and frequent white spots on its skin, stored until April; it is called Rdzevashla (Milky-apple) due to its white coloured juice; are found in orchards of villages in Adigeni, Akhaltsikhe and Aspindza regions.
8. **Bostana** [*ბოსტანა*] – a tree with an average strength of growth, pyramidal top, sensitive to pests and disease, fruits - middle-size, narrowed in the bottom, yellow, harvested in September, stored until February, quite tasty, only a single trees could be found.
9. **Tsiteli-vashli** [*წითელი-ვაშლი*] – a tree with an average strength of growth, with open top (crown), relatively resistant to pests and disease, fruits - middle-size, narrowed in the bottom, with large red stripes, often completely red; relatively early variety, is consumed upon harvest, stored until December, are found in old orchards of villages of Adigeni and Aspindza regions.
10. **Erbo-vashli** [*ერბო-ვაშლი*] **–** a tree with a weak strength of growth, with open top, moderately resistant to pests and disease, fruits - yellow, with very soft, melting flesh when ripen (this is a reason for its name “Erbo-vashli” – “Melted-butter apple”); harvested in the end of August - beginning of September, stored until December, not well transportable, single trees are found in Akhaltsikhe region.
11. **Zapkhulis-vashli** [*ზაფხულის-ვაშლი*] – a tree with a middle strength of growth, with open top (crown), low resistance to pests and disease, fruits - middle-size, yellow, with narrow red stripes, the earliest variety in this zone, consumed upon harvest, stored for 1-2 months, not well transportable, is found in Adigeni and Akhaltsikhe regions.

12. **Supris-silamaze [*სუფრის-სილამაზე*]** – quite a vigorous tree, 12-14m height, with pyramidal top, large dark-green leaves, pests and disease resistant; fruits – middle-size, green, with dark-red upper part, like Abilauri; harvested in October, stored until May, well transportable, single trees are found in Akhaltsikhe region.
13. **Tatena [*თათენა*]** – a tree with an average strength of growth, with open top (crown), resistant to pests and disease, fruits – large, high-built, narrowed in the faceted bottom; yellow, with large, red stripes, covered with waxy flakes, harvested in October, stored until March, well-transportable, a good “market fruit”, single trees are found in old orchards of Adigeni and Akhaltsikhe regions.
14. **Makhara [*მახარა*]** – quite a vigorous tree, with pyramidal top (crown), high-yielding tree giving up to 1,2-1,5tons of fruit per tree; resistant to pests and disease; fruits - large, dark-yellow, with large red stripes, often red, the flesh is sour (that is why it is called “Mzave-vashli” – “Sour-apple”), harvested in October, well-transportable, stored until May, single trees are found in Adigeni and Akhaltsikhe regions.
15. **Jori-tskhvira [*ჯორი-ცხვირა*]** - a vigorous tree, with pyramidal top (crown), resistant to pests and disease, well-transportable; fruits - large, high-built, narrowed in the bottom, green, with reddish upper part; harvested in October, stored until March, single trees are found in Adigeni region.
16. **Mepis-vashli [*მეფის ვაშლი*]** - a vigorous tree, with open top (crown), sensitive to pests and disease, fruits - middle-size, high-built, with dark-red stripes, often red, harvested in September-October, stored until March; transportable, is a good “market fruit”; single trees are found in Adigeni, Akhaltsikhe and Aspindza regions.
17. **Mamulo [*მამულო*]** - a tree with an average strength of growth, open top (crown), pests and disease resistant, fruits - middle-size, narrowed in the bottom, with dark-red stripes; transportable, harvested in October, stored until February, single trees are found in some villages of Aspindza and Adigeni regions.
18. **Tetri-vashli [*თეთრი-ვაშლი*]** - a tree with a weak strength of growth, with open top (crown), middle-resistant to pests and disease, fruits - middle-size, white, slightly yellowish, tasty, “market fruit”, harvested in September, stored until January, single trees are found in Adigeni regions.
19. **Mzis-skhivi [*მზის-სხივი*]** - a tree with an average strength of growth, open top (crown), resistant to pests and disease, fruits - quite large, slightly narrowed in the bottom, white, slightly yellowish, tasty, “market fruit”; harvested in September-October, well-transportable, single trees are found in Akhaltsikhe region.
20. **Bobovi [*ბობოვი*]** - a vigorous tree, with open top (crown), resistant to pests and disease, fruits - large, rather flat, green, slightly yellow, harvested in October, stored until March, well-transportable, is a “market fruit”; single trees are found in old orchards of Adigeni and Akhaltsikhe regions.

A.2. Pear Varieties [*A.2. მსხლის ჯიშები*] (*Pyrus L.*)

1. **Saselo [*სასელო*] -** a vigorous tree, with pyramidal top (crown), less sensitive to pests and disease, fruits - middle-size, pear-shape, green-yellowish; an early fruit, harvested in late July, not well-transportable, now single trees are found in the same three regions as mentioned above.
2. **Gogra-mskhali [*გოგრა-მსხალი*]** - a vigorous tree, sensitive to pests and disease, especially to mange, what is limiting its marketing value, despite a lot of good characteristics; fruits - often unevenly developed, quite sweet, with many rock-hard particles in flesh; despite the above mentioned, it is very popular among population due to its value added opportunities for dry-fruit, juice and vodka production; it is spread in all three regions and is produced mostly for own consumption and can be found in both old and new orchards.
3. **Tsitelgverda [*წითელგვერდა*]** - a vigorous tree, with pyramidal top (crown), resistant to pests and disease, fruits - middle-size, green, more then half turning into red when ripen (this is a reason for its name “Tsitelgverda” – “Red-sided”), enters in ripening after Saselo and Kabagarmudi; relatively transportable, stored for 2-3 months, can be found in both old and new orchards of Adigeni, Axaltsixe and Aspindza regions.
4. **Nanziri [*ნანზირი*]** - a vigorous tree, with pyramidal top (crown), sensitive to pests and disease, fruits - pear-shaped, with fleshy petiole end, ripens in August-September, not well-transportable; used locally for dry-fruit, juice, jam and vodka production, single trees are found in Akhaltsikhe, Adigeni and Aspindza regions.
5. **Khechechuri [*ხეჭეჭური*]** - a vigorous tree, with pyramidal top (crown), pests and disease resistant, fruits – quite large, with thick petiole end, different variations of this pear are met; is quite wide-spread in Akhaltsikhe, Adigeni and Aspindza regions, produced for local consumption.
6. **Tavrejuli [*თავრეჯული*]** - a vigorous tree, with pyramidal top (crown), resistant to pest and disease, fruits - middle-size with green-yellow, harvested in September-October, stored until February, not well transportable and mostly used locally for juice production or pickling, a single trees are found in Adigeni,

Aspindza and Akhaltsikhe regions.

7. **Santela [*სანთელა*]** - a tree with an average strength of growth, with not very open top (crown), middle-resistant to pests and disease; fruits - pear-shaped, middle-size, yellowish, gets darker when ripens, harvested in September-October, stored until January, quite juicy; transportable, more or less; single trees are found in high zone villages.
8. **Nana-mskhali [*ნანა-მსხალი*]** - a tree with an average strength of growth, middle-resistant to pests and disease, fruits - smaller than usual, harvested in September, is consumed locally; single trees are found in Aspindza, Akhaltsikhe and Adigeni regions.
9. **Grdzeli mskhali [*გრძელი მსხალი*]** - a tree with an average strength of growth, quite resistant to pests and disease, fruits - oblong pears alike, green even after ripening; a late variety, harvested in October and stored until January, single trees are found in old orchards of Adigeni and Akhaltsikhe regions.
10. **Chochila [*ჭოჭილა*]** - quite a vigorous tree, some of the trees are 140-150 years old; high-yielding (but harvesting is difficult), transportable, more or less, produced for local consumption, single trees are found in villages Ude, Adigeni region and Kheoti, Akhaltsikhe region.
11. **Sachure [*საჭურე*]** - a vigorous tree, with pyramidal top (crown), quite resistant to pests and disease, fruits - small than usual, very well stored especially if stored in "churi" - a big clay vessel buried in the ground, consumed locally for pickling, well-transportable, very few trees are found in several villages of Akhaltsikhe region.
12. **Zamtris-gulabi [*ზამთრის-გულაბი*]** – a vigorous tree, quite resistant to pests and disease, fruits – quite large, high-built, green, harvested in October, stored until February, well-transportable, now single trees are found in old orchards of Adigeni region.
13. **Kotes-mskhali [*კოტეს-მსხალი*]** – tree with a weak strength of growth, with oval top (crown), looks like a tea-bush at first sight; pests and disease resistant, harvested in August-September, single trees are found in Adigeni region, village Arali, only in the orchard of Tatunashvili family.
14. **Samariobo [*სამარიობო*]** – tree with an average strength of growth, with pyramidal top (crown), relatively less resistant to pests and disease, an early variety, harvested in August, for St. Mary's Day), used for local consumption as a fresh fruit; single trees are found in old orchards of Akhaltsikhe and Adigeni regions.

Drought resistant wild ancestral species of pears – so called "Berkena" wild pear, spread in this region, should be used for development of pear orchards. These trees grow very well on mountain slopes, steep slopes and even on rocks (in poor soil conditions). Local population uses some of these fruits, and, also, wild pear is used as a root tree for grafting to cultivate pear orchards on non-irrigated areas and to get high harvests. It is assumed that initially cultivated pears were developed from their wild relative – "Berkena".

A3. Other Fruit Trees [*A.3. ხეხილის სხვა ჯიშები*]

1. Along with the seed fruit-trees, stone (drupe) fruit-trees occupy a considerable area. Especially big areas are occupied by **"chanchuri"** (form of plum, Prunus L.), which has local origin and various forms of which grow in this region. The forms of "chanchuri" differ from each other by the thickness of the fruit, taste qualities, strength of growth and fruit colour. **Yellow "chanchuri" [*ჭანჭური*]** - (quite rare) grows next to a red one. There are a lot of products made out of "chanchuri" by indigenous people: marmalade (without sugar), which can be stored for more than 2 years; dried fruits, "Tklapi", and quite aromatic vodka.

2. The inhabitants of the region respect one of the varieties of **plum [*ქლიავი*] - (Prunus L.)** with white twin-fruit in particular, which is known as **"Chatalalumi"** [*ჩათალალუმი*]; juices, jams and sauces are made from this fruit; single trees of this variety grow in few villages of Adigeni region.

3. Another variety of plum **– "Tskalqliava" [*წყალქლიავა*]** - (water plum) is met in this region, but it is not widely spread.

4. Mulberry [*თუთა*] - (Morus L.) is very popular together with other plants in Samtskhe-Javakheti region. Mulberry (white) trees grow in every village of the region. It gets used to every soil and climate conditions very well. There were lot of mulberry plantings in the following villages of Aspindza region: Sano, Khertvisi, Toloshi, Khizabavra, and in the fruit-tree gardens of Aspindza. But due to hardships of recent times most of the trees have been cut down. At present there are only several trees in the yards, or gardens of the region.

Local population makes various products from this fruit. It is consumed fresh; from processed products condensed syrup, so called "Baqmazi" is the most popular; it has honey-like characters, as well as high

nutrition value (it values more than natural honey on the local market) – one tea-spoon of the syrup is enough to sweeten one glass of water. There are other products from mulberry including dried mulberries, sweet “tklapi” and mulberry vodka, which is very popular among local people and costs twice as much as those vodkas made from other fruits. The restoration and propagation of these trees will considerably improve social conditions of the population.

5. Berries are quite popular in Samtskhe-Javakheti region. Among berries only **currants [*მაყვალი*] - (*Ribes L.*)** are cultivated. There are two forms of currants – red and black. Stewed fruits and jams are made from currants. Plantations of manufacturing significance can be developed on 3-5 hectare area, if funding is available.

Products obtained from berries are used by local people not only as food (in fresh or processed form), but also for medicinal purposes. For example, very popular **bilberry [*მოცვი*] - (Vaccinium L.)**, met in the alpine zone of the region. This plant has two forms – first is a quite high bush with dark red fruits; the bush grows at an altitude 1400-2000m above the sea level in transitional area of forest and alpine zones. The other form of the plant is smaller (about 40-60cm height) forming dense groves. Vegetative parts and berries of bilberries are used for making tea; jam and dried fruits are made from the fruits of this plant, which is also used for intestine treatment. Tens of tons of production can be received from bilberry sources in this region.

6. There is a considerable amount of wild **sea-buckthorn [*ქაცვი*] - (*Hippophae L.*)** along the banks of the rivers and in small ravines of the region, the forms of which differ in thorniness, fruit thickness and fruit colour. This plant is famous for the medical oil made from it. Local population make marmalade, stewed fruits and juice in addition. Tens of tons of raw material can be produced in the region if there will be a demand.

B. Field Crops [*B. მინდვრის კულტურები*]

B1. Cereals [*B1. მარცვლოვანი კულტურები*]

1. Rye [ჭვავი] - (Secale cereale L.)

2. Barley [ქერი/ქრთილი] - (Hordeum vulgare L. ssp. vulgare)

3. Proso Millet [ფეტვი] - (Panicum miliaceum L. var. effusum Alef)

4. Oat [შვრია] - (Avena sativa L. Hordeum vulgare L. ssp. vulgare)

5. Foxtail Millet [ქვრიმა, ღომი] - (Setaria moharium Alef.)

B2. Legimes [*B2. პარკოსანი მარცვლოვანი კულტურები*]

1. Lentil [*ოსპი*] - *Lens culinaris Medic*.

Lentil is an ancient valuable legume crop. It is mainly used in food. Lentil grains contain 30% of protein and have better boiling qualities, than chickpeas, garden peas and beans, but it cannot compete with them in crop capacity. Lentil is used in many ways in food industry - canned, sausage, protein preparation, boiled, and so on. For these reasons, lentil is very valuable abroad, while, unfortunately, it is almost forgotten in our country. Nevertheless, it used to have an important place among legumes in past years.

There are two types of lentil: thin-seed and thick-seed. It is better to cultivate thick-seed variety, as

it grows better and gives higher harvest. Lentil is sown in early spring on maximally weed-less soil, that is why it must be sown after hoe crops (maize, potato). Weeds should be controlled on the plot, as they suppress lentil sprouts. Lentil is a good forerunner for winter and summer grain crops. Lentil is sown both in narrow and in wide rows. It is better to keep 45-cm gaps between rows, because in this case less seed material will be spent (50-60kg). The depth of sowing should be 5-6 cm. Ground should be stamped. Cultivation is necessary after germination.

Lentil requires less water, than horse bean and chickpea but excess of water deficiency is not desirable. Lentil does not require too fertilised soil and it gives better harvest on the second, or third year of soil enrichment with manure. Flat seeds of common vetch often mix with lentil seeds, therefore, this should be taken into account during preparation of seed material. If one fails to separate these seeds, then thinning out will be required in the vegetation period.

Yield is more than 1.3 tons per hectare and can be doubled, if properly looked after. Harvest should be gathered when 50% of bean pods turn dark and grains harden. A straw is used as fodder.

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2. "Tsulispira" (*Chickling Vetch*) **[ცულისპირა]** - *Lathyrus sativus L*.

Chickling vetch has versatile usage. Its proteins can substitute those of animals. In mountain zones, where beans do not grow, it is used instead of beans. High-calorie bread is baked from the flour that is a mixture of chickling vetch and wheat flour. Coffee surrogate is made from grains of this crop. It is used for fodder, hay, green fodder, grazing, silage, and as green manure.

Chickling vetch is sown in early spring. It begins germination at the temperature of about 4-5 degrees and does not need warmth, as it is a cool climate crop and stands even short frosts of 8-11 degrees. Chickling vetch stands atmospheric drought better than soil drought. It does not require too much from the soil. It poorly grows on marshy or moist soils and does not grow on saline soils. Good forerunners for chickling vetch are hoe and grain crops. Chickling vetch itself is a good forerunner for grain crops.

Under conditions of warm winter, chickling vetch can be sown in autumn as well. It is sown in 45-15cm rows 5-6 cm deep in the soil. It is harvested when most of the pods ripen and turn yellow. Seed material required per hectare is about 150-200 kg. It is good to keep seeds in the sun before sowing. It is often sown with other crops, such as barley (in dry areas) and oats (in moist areas). Such inter-cropping measure prevents stem fall-down.

3. Chickpea [მუხუდო/ერევინდი, ციცირი, სისირი] - *Cicer arietinum L*.

Chickpea is one of the oldest legume crops. Its seeds contain a lot of protein (25%) and fat (4.5%). It is a good food product thanks to its taste qualities. Cooked, it is used as garnish or as coffee surrogate. Thick-seed white varieties are used in food industry and thin-seed dark varieties for fodder.

Considering that Chickpea is rather drought resistant and stands hot winds as well, it is perspective crop for both dry and hot regions. Chickpea likes warmth and is sown in spring, however there are some local forms that are sown in autumn and stand warm winter pretty well. Newly germinated plant can resist frosts of minus 11 degrees.

Chickpea is quite demanding to soil. It grows well on black, sandy and gritty soils. Good forerunners for Chickpea are spring crops, while it is a good forerunner for grain crops itself. The soil should be ploughed deeply sometimes 27 cm deep (this measure is to increase harvest which will be about 2 tons per hectare in such case). Chickpea is sown in wide rows of 45 cm. Distance between plants is about 15-20 cm, sowing depth - 5-7 cm. After germination two cultivations must be carried out for weeding purposes. Needed seed material is 80-120 kg per hectare.

Chickpea used to be sown together with maize in Georgia. Chickpea pods ripen at the same time, therefore it must be harvested at the stage of full ripeness. No delay can be afforded, as the seeds will get too much dry and it will be difficult to cook them.

4. Horse bean **[*ცერცვი/ბაკლა*]** – *Vicia faba (= Faba vulgaris Moench)*

5. Horse bean **[*ცერცველა/ვირიგვერდა*]** – *Vicia variabilis*

6. Horse bean **[*ცხენის ცერცველა/გარეული ცერცვი*]** – *Vicia narbonensis*

B3. Flowering Plant Varieties used for Food/Culinary [*B3. ზეთოვანი კულტურები*]

1. Flax **[*სელი*] -** *Linum usitatissimum*

Flax is one of the oldest crops in Georgia. It was widespread in the whole country. There are two types of flax from the viewpoint of its usage: flax used for oil making, and flax used for making fibres. Seeds of oil flax contain about 35-42% of oil. It is used in food, medicine, and perfume industries. Residual seed paste is best feed.

A flax fibre has many good qualities. It is two times stronger than cotton fibre and three times stronger than wool fibre. Fabric of highest quality – linen and technical tarpaulin are made from flax. Smokeless powder-containing component – nitrocellulose is made from the fibre of this crop. Its short fibre is used for producing rope, cord and filling material. Cardboard, ethyl alcohol, acetic acid, and acetone are made from flax. Therefore, flax is a high productive, thrifty crop.

Fibre flax prevailed in West Georgia, on Kolkheti valley, while **oil flax** grew in mountain region of East Georgia and in Samtskhe-Javakheti. Cultivation of flax is possible in all regions of our country. It is good forerunner for spring wheat, potatoes and beetroot when perennial legumes, wheat, and root crops are its good forerunners for it. Roots of flax do not grow deep into the ground, and this should be considered in advance – in autumn, tillage of frost soil at about 20-22 cm deep, and in spring, before sowing, frost harrowing and cultivation with paddle cultivator is recommended.

If sown early, flax gives good harvest, because it absorbs moisture better and is less damaged by flax flea and fungal diseases. Fibre flax is sown in narrow rows (7.5cm), while seed and oil flax are sown in wide rows of about 20-35 cm. Needed seed material is 30-40 kg per hectare; sowing depth - 1.5-2 cm on heavy and 3 cm on light soils respectively. After sowing, weeding and soil lightening measures – harrowing, cultivation and hoeing. Flax often is damaged by silkworm. It is necessary to dig and take out damaged plants. Flax is harvested much earlier for fibre purposes than for oil. Yields are 4-4.5 tons of fibre and 1-1.2 tons of seeds.

Annex 2. Tentative Outline for Baseline Study on Agrobiodiversity and Agrotourism

Tentative Outline
2023-11-14 mdz

BASELINE STUDY
ON AGROBIODIVERSITY AND AGROTOURISM
IN SAMTSKHE-JAVAKHETI REGION

(*Baseline study to collect social, economic and gender-related data to assess role of agrobiodiversity and agrotourism in wellbeing and environment sustainability in Samtskhe-Javakheti Region – with identification of specific gender differences, including women and men's different roles, needs, priorities, capacities and vulnerabilities*)

5.2.3. Land Holding Pattern

5.2.4. Food Sufficiency Situation

5.2.5. Housing Conditions and Sanitation Facility

5.2.6. Family Assets

5.2.7. Sources of Drinking Water

5.3. Agrobiodiversity

5.3.1. General Awareness on Biodiversity and Agrobiodiversity

5.3.2. Significance of Aboriginal Meskhetian Vine Landraces/Varieties

5.3.3. Significance of Aboriginal Meskhetian Wheat Landraces/Varieties

5.3.4. Significance of Traditional Meskhetian Aboriginal Crops other than Vine and Wheat

5.3.5. Significance of Traditional Meskhetian Aboriginal Livestock

5.3.6. Areas of Biological/Agrobiodiversity Significance outside Agricultural Lands

5.3.7. Participation in Biodiversity/Agrobiodiversity Conservation

5.3.8. Human Wildlife Conflict

5.3.9. Issues Related to Biodiversity/Agrobiodiversity Conservation

5.4. Agrotourism

5.4.1. Significance of Agrotourism

5.4.2. Significance of Traditional Meskhetian Crop (incl. Aboriginal Meskhetian Vine and Wheat Landraces/Varieties) and Livestock Based Agrotourism

5.4.3. Participation in and Income Generation from Agrotourism

5.4.4. Issues Related to Agrotourism

5.5. Wellbeing and Environmental Sustainability

5.5.1. Wellbeing Ranking

5.5.2. Environmental Sustainability

5.5.3. Knowledge and Experience of Sustainable Land Management

5.5.4. Knowledge and Experience of Climate Change

5.5.5. Energy Sources and Use

5.5.6. Impacts of Climate Change, Vulnerability and Adaptability

5.5.7. Impacts of Deforestation

5.5.8. Impacts of Land Degradation

5.5.9. Issues Related to Wellbeing and Environmental Sustainability

5.6. Agrobiodiversity and agrotourism Awareness Raising, Capacity Building and Income Generating Activities

5.6.1. Awareness Raising and Trainings

5.6.2. Skill-based Training on Agrobiodiversity

5.6.3. Skill-based Training on Agrotourism