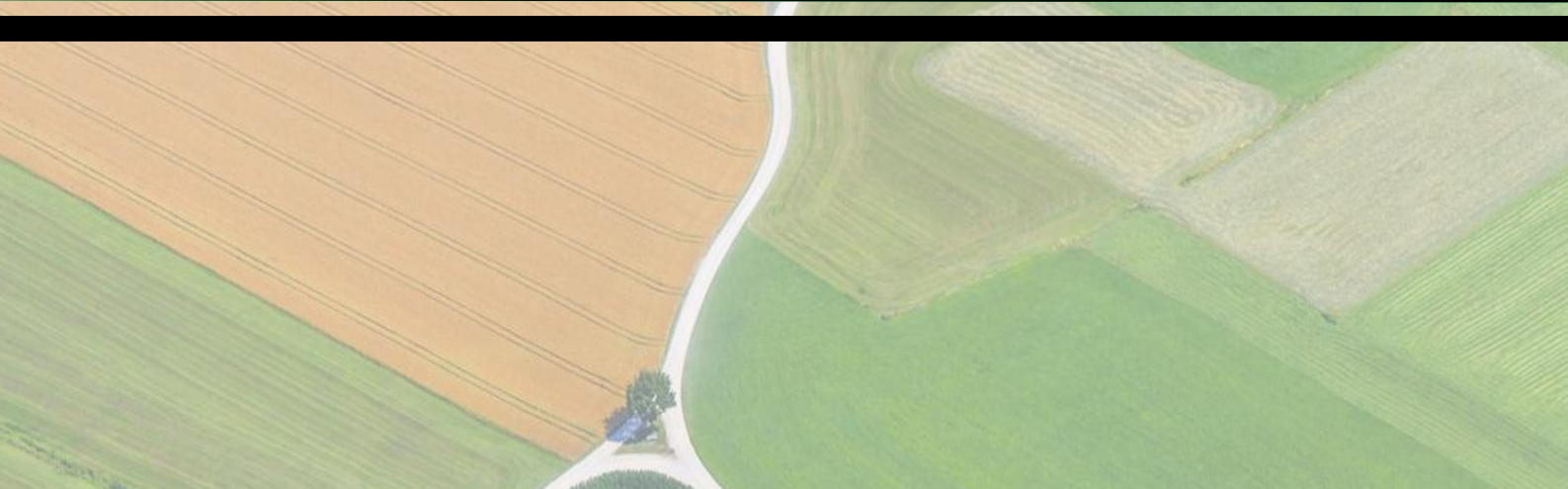
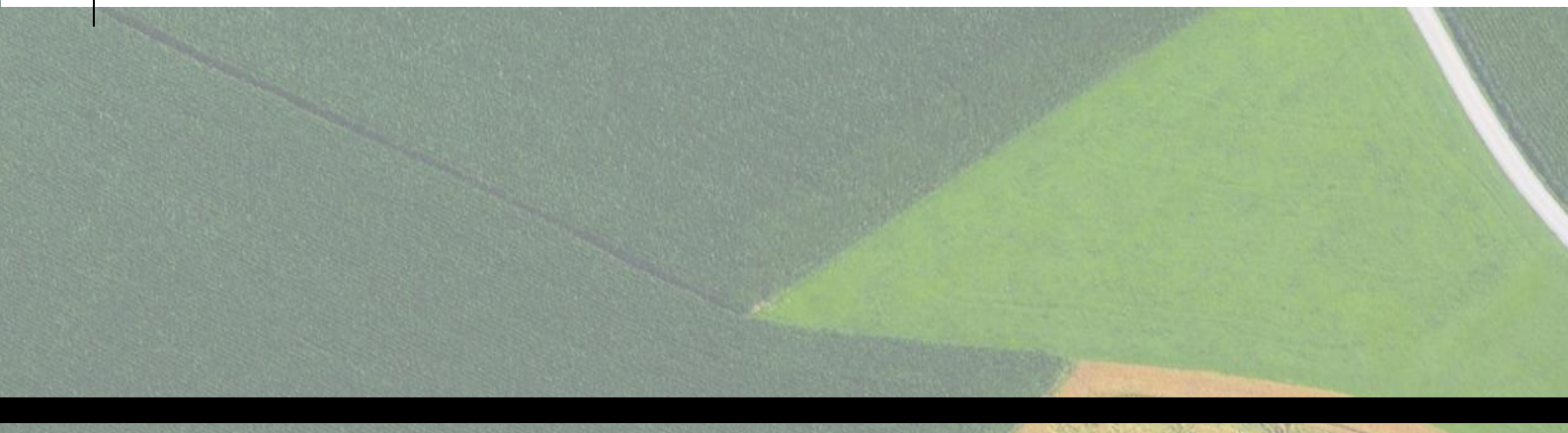




# **METHODOLOGY FOR IMPROVING AND REPORTING THE LEVEL OF SEQUESTERED CARBON IN THE SOIL IN THE AGRICULTURAL SECTOR**



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## GLOSSARY

| ABBREVIATION                   | GLOSSARY OF ABBREVIATIONS                                                                                                                                                                                                 |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| APSA                           | Agricultural Producer Support Act                                                                                                                                                                                         |
| CCLA                           | Climate Change Limitation Act                                                                                                                                                                                             |
| GTIN                           | Global Trade Item Number                                                                                                                                                                                                  |
| IMS                            | Integrated management system                                                                                                                                                                                              |
| ISACO <sub>2</sub>             | Integrated system for administration, control, and reporting                                                                                                                                                              |
| ISAC                           | Integrated system for administration and control                                                                                                                                                                          |
| LOAL                           | Law on the ownership and use of agricultural lands                                                                                                                                                                        |
| LPAL                           | Law for the Protection of Agricultural Lands                                                                                                                                                                              |
| LCPR                           | Law on the cadastre and property register                                                                                                                                                                                 |
| MoA                            | Ministry of Agriculture                                                                                                                                                                                                   |
| OC                             | Organic carbon                                                                                                                                                                                                            |
| SFA                            | State fund of "Agriculture"                                                                                                                                                                                               |
| SFA EMS                        | State fund agriculture electronic management system                                                                                                                                                                       |
| SOC                            | Soil organic carbon                                                                                                                                                                                                       |
| QES                            | Qualified electronic signature                                                                                                                                                                                            |
| TOC                            | Total organic carbon                                                                                                                                                                                                      |
| VAT                            | Value added tax                                                                                                                                                                                                           |
| VVB                            | <b>Validation and verification body</b>                                                                                                                                                                                   |
| GLOSSARY OF TERMS              | DEFINITION                                                                                                                                                                                                                |
| <b>Accredited laboratory</b>   | An accredited laboratory is an official recognition of competence for the performance of specific activities authorized by a specialized state body.                                                                      |
| <b>Additionality</b>           | Implementation of new good agricultural practices or investments above the mandatory legal requirements                                                                                                                   |
| <b>Administrative contract</b> | A contract in a framework agreement, which is concluded in implementation of a project.                                                                                                                                   |
| <b>Agricultural activity</b>   | The production of agricultural products, including harvesting, milk production, rearing and breeding of farm animals for agricultural purposes and/or maintaining the land in good agricultural and ecological condition. |
| <b>Agricultural crops</b>      | Plants of a given botanical species and genus that are cultivated by man to satisfy certain of his needs.                                                                                                                 |

|                               |                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Agricultural areas</b>     | Arable land (including fallow), pasture, permanent grass, permanent crops, and family gardens whether used for agricultural production.                                                                                                                                                                                                                                                         |
| <b>Agricultural machinery</b> | Equipment that is used for soil cultivation and harvesting, such as: tractors, self-propelled machinery - wheeled tractors, tracked tractors, specialized self-propelled machines (forage harvesters, grain harvesters, etc.) and other types of self-propelled machinery and interchangeable attachments, including when they are used in livestock facilities.                                |
| <b>Agriculture</b>            | All units used for agricultural activities and managed by a farmer, located on the territory of the same agricultural holding.                                                                                                                                                                                                                                                                  |
| <b>Audit</b>                  | An independent and systematic, documented process of obtaining objective evidence and evaluating it objectively to determine the extent to which the audit criteria are satisfied. Determining the fit between requirements and performance.                                                                                                                                                    |
| <b>Audit mission</b>          | An independent documented process of one and/or several persons collecting and certifying facts for the fulfillment of certain requirements.                                                                                                                                                                                                                                                    |
| <b>Baseline</b>               | Practices applied and soil organic carbon content, prior to project availability.                                                                                                                                                                                                                                                                                                               |
| <b>Baseline soil sample</b>   | A baseline of soil organic carbon content against which subsequent measurement and analysis of the result is performed.                                                                                                                                                                                                                                                                         |
| <b>Buffer</b>                 | A mechanism with the role of a guarantee fund that guarantees the permanence and sustainability of the project and serves as insurance against force majeure events.                                                                                                                                                                                                                            |
| <b>Business year</b>          | The business year in agriculture is a reporting period of approximately twelve months, which covers the full cycle of agricultural production and is determined according to the climatic and agrotechnical conditions of the respective territory.                                                                                                                                             |
| <b>Calculation period</b>     | The period between two points in time for which a change in carbon stocks is achieved. In the current methodology, this is the period between two soil samples.                                                                                                                                                                                                                                 |
| <b>Carbon dioxide</b>         | Carbon dioxide (carbon dioxide) is a chemical compound. Chemical formula CO <sub>2</sub> . Colorless and odorless gas It is obtained as a product of the respiration of living organisms, as well as during combustion. It participates as a starting substance in the photosynthesis of plants. Its accumulation in larger than normal amounts in the atmosphere leads to a greenhouse effect. |
| <b>Carbon credit</b>          | One ton of carbon dioxide equals one carbon credit that is no longer emitted into the atmosphere. A carbon credit is a                                                                                                                                                                                                                                                                          |

|                                   |                                                                                                                                                                                                                                                      |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                   | transferable, tradable instrument. The main purpose of creating carbon credits is the reduction of carbon dioxide emissions from industrial activities. 1 carbon credit is equal to 250 kg of carbon in the soil. Approximately formed on 4 decares. |
|                                   |                                                                                                                                                                                                                                                      |
| <b>Carbon Credit Trading</b>      | Carbon markets are trading systems in which carbon credits are sold and bought.                                                                                                                                                                      |
|                                   |                                                                                                                                                                                                                                                      |
| <b>Cell</b>                       | The territory, with a minimum size of 4 ha and a maximum size of 25 ha, from which an average soil sample is formed.                                                                                                                                 |
| <b>Check list</b>                 | A document that serves to fill in, calculate and analyze data for the purpose of proving and certifying facts and arguments. To be completed by the project developer.                                                                               |
|                                   |                                                                                                                                                                                                                                                      |
| <b>Control soil sample</b>        | Follow-up soil measurement in the next 4 economic years after the baseline soil organic carbon content, against which the result analysis is performed. It is carried out by the Controlling organization.                                           |
| <b>Digital data on land use</b>   | Files containing a Geographic Information System (GIS) for creating, manipulating, storing, analyzing, and visualizing geographically bound (spatial) data for mapping the surveyed territory.                                                       |
| <b>Documents</b>                  | A package of documents containing all information on the implementation of the project.                                                                                                                                                              |
| <b>First Party/Internal Audit</b> | A first-party audit is an internal audit carried out across the organization or on behalf of the organization for the purpose of an activity declaration review.                                                                                     |
| <b>Individual strategy</b>        | An individual document for the implementation of science-based, good agricultural practices, developed for each farm.                                                                                                                                |
| <b>Irregularity</b>               | Any violation of the methodology rules.                                                                                                                                                                                                              |
| <b>ISACO<sub>2</sub></b>          | Specialized software for Integrated Administration, Control and Reporting System.                                                                                                                                                                    |
| <b>KML file</b>                   | A specific file format for expressing geographic annotation and visualization, store's locations, image overlays, video links, and modeling information such as lines, shapes, 3D images, and points.                                                |
| <b>Land area</b>                  | A land area is defined as the collection of land properties belonging to a given settlement (i.e., land properties both within and outside the settlement area).                                                                                     |
| <b>Land property</b>              | Land property is a part of the earth's surface, including that which is permanently covered with water, defined by boundaries according to the right of ownership.                                                                                   |

|                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Macroelements</b>                          | Chemical elements: K, Ca, N, Mg, P, S.                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Methodology</b>                            | The current methodology is for measuring and accounting for differences in organic carbon C in soil formed by removal of atmospheric carbon dioxide CO <sub>2</sub> and its storage.                                                                                                                                                                                                                                                                                              |
| <b>Microelements</b>                          | Chemical elements: Cu, Mn, Zn, B, Fe, Mo, Na.                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Monitoring</b>                             | Monitoring the implementation and reporting the results of the project.                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Monitoring of carbon credits</b>           | Tracking of issued carbon credits as a result of project implementation.                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Monitoring, Report, Verification (MRV)</b> | A process by which data is collected, analyzed, and verified.                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>NUTS</b>                                   | Classification of territorial units for statistical purposes in Bulgaria (NUTS) according to Regulation (EC) No. 1059/2003 of the European Parliament                                                                                                                                                                                                                                                                                                                             |
| <b>Operator</b>                               | A legal entity or a natural person who is registered as an Agricultural holding from the Plant Breeding and/or Plant Breeding with Livestock sector and is implementing a project.                                                                                                                                                                                                                                                                                                |
| <b>Organic carbon (OC)</b>                    | A compound of carbon without carbides, oxides, carbonic acid and its derivatives.                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Organic matter (OM)</b>                    | A collection of the remains of plant and animal organisms, subjected to decomposition to varying degrees (a process known as "mineralization").                                                                                                                                                                                                                                                                                                                                   |
| <b>Perennials</b>                             | Areas occupied by fruit and vine plantations, bamboo, mulberry, reed, wicker for basket weaving, honey-bearing tree species to produce honey, other fast-growing shrubs and tree species used for bioenergy production, berry orchards, nurseries for vine planting material, fruit trees, ornamental shrubs and forest saplings and other plantings with a vegetation period of more than two years.                                                                             |
| <b>Program</b>                                | <p>The program represents a system of sustainable agricultural practices based on regenerative agriculture, which aim to improve the content of organic carbon in the soil, increase the capture of greenhouse gases and their storage during the monitoring period.</p> <p>The program is implemented on the territory of the Republic of Bulgaria - BG, and distributed to project regions on a territorial basis - Planning areas according to NUTS II and NUTS III codes.</p> |
| <b>Programming period</b>                     | A period of 5 business years surveying the same areas/plots for sequestered carbon with the possibility of extension for a further 5 years.                                                                                                                                                                                                                                                                                                                                       |
| <b>Project area</b>                           | A project area is defined on a territorial basis, based on the use of agricultural land.                                                                                                                                                                                                                                                                                                                                                                                          |

|                                    |                                                                                                                                                                                                                                                                                                                                                      |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Project</b>                     | The project is determined on a territorial basis, based on a legal basis for the use of agricultural land with a duration of at least 5 economic years.                                                                                                                                                                                              |
| <b>Public Registry</b>             | Public register for registering Methodologies/Standards, Projects and issuing serial numbers to the removals generated by them.                                                                                                                                                                                                                      |
| <b>Regenerative agriculture</b>    | A farming system that is based on several different parameters and practices, such as minimum tillage, use of cover crops and active crop rotation, use of organic fertilization, healthy management of plant residues and reduced fuel use, stimulating the implementation of rotational grazing of the places where animal husbandry is developed. |
| <b>Registration of a farmer</b>    | The registration of an agricultural producer according to Ordinance No. 3 of 29.01.1999. to create and maintain a register of agricultural producers.                                                                                                                                                                                                |
| <b>Register</b>                    | A document that serves to fill in, calculate and analyze data for the purpose of proving and certifying facts and arguments. To be completed by the Controlling Organization and/or authorized body.                                                                                                                                                 |
| <b>Second Party/External Audit</b> | A second-party audit is an external audit and is performed by parties (clients) and/or on their behalf who have an interest/relationship with/to the organization.                                                                                                                                                                                   |
| <b>Sequestered carbon</b>          | A biological process of capture, retention, and long-term storage of carbon in the soil.                                                                                                                                                                                                                                                             |
| <b>Site visit</b>                  | Visit to the areas of the Project Participant in order to verify the stated facts                                                                                                                                                                                                                                                                    |
| <b>Soil organic carbon (SOC)</b>   | Soil organic carbon is a component of soil organic matter. Organic matter consists mainly of carbon (58%), with the remaining mass consisting of water and other nutrients such as nitrogen and potassium.                                                                                                                                           |
| <b>Shape file</b>                  | A specific file format created for a geographic format for recording the spatial location and attribute information of geographic objects.                                                                                                                                                                                                           |
| <b>Technology map</b>              | A document that serves to fill in the calculation and analysis of data to prove and certify facts carried out on the cells/plots in the agricultural holding participating in a project.                                                                                                                                                             |
| <b>Third Party/External Audit</b>  | A third-party audit is an external audit and is carried out by external independent auditing organizations that provide compliance certification/registration.                                                                                                                                                                                       |
| <b>Total organic carbon (TOC)</b>  | Quantity of carbon that is converted into carbon dioxide by combustion and which is not liberated as carbon dioxide by acid treatment.                                                                                                                                                                                                               |

|                                      |                                                                                                                                                                 |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Units of measure/Coefficients</b> | <p>1 hectare = 10 decare.</p> <p>1 decare = 0.1 hectare.</p> <p>1 ton of SOC = 3.667 carbon credits</p>                                                         |
| <b>Validation/Confirmation</b>       | Confirmation, by providing objective evidence, that the requirements defined in the methodology intended for application have been met.                         |
| <b>VCM (Voluntary carbon market)</b> | VCM is a decentralized market where private actors voluntarily buy and sell carbon credits that represent certified removals or reductions of greenhouse gases. |
| <b>Verification/Verification</b>     | Confirmation, by providing objective evidence, that the specified requirements in the methodology have been met.                                                |

## I. INTRODUCTION

The present methodology<sup>1</sup> for removal of atmospheric carbon dioxide CO<sub>2</sub> and its storage in the soil as carbon C, provides a set of rules, procedures and requirements, which confirm the removal and reduction of CO<sub>2</sub>, and which conform with the conditions for certification /payment. The present mechanism has two major goals:

- ✓ It guarantees that carbon credits are real, measurable, additional, that they do not lead to leakage, are not double reported and are sustainable.
- ✓ It assists the large-scale adoption and application so that the potential mitigating effect can be increased to the maximum.

The methodology provides reasonable assurance through application of the rules set forth in it that is a reliable system of management, control, and reporting of the amount of sequestered carbon from agricultural activities in – perennial plants, annual crops and other agricultural crops and will not allow actions, which contradict the European and Bulgarian legislation and are against the interests of society. The basis of the methodology is a credit mechanism whose aim is to encourage and reward only additional new removals of CO<sub>2</sub>, i.e., those, which would not arise in the absence of mechanisms/projects for their removal.

### **The methodology refers to four procedures for work:**

Appendix 01 „Procedure for drawing up of agronomic prescriptions, recommendations and an individual strategy“;

Appendix 02\_Procedure for registration and monitoring of projects

Appendix 03\_ Procedure for automatic georeferenced soil sampling.

Appendix 04\_Maintenance of the documentation, Team, and resourcing.

## II. SCOPE AND STRUCTURE OF THE METHODOLOGY

The methodology outlines the framework of specific requirements combined with a quantitative evaluation of activities and arrangements of the processes of management, measurement, and reporting of the changes of soil organic carbon (SOC), through the

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<sup>1</sup> A methodology founded on nature-based solutions (NBS) with targeted measures, activities and agronomic recommendations based on the principle of regenerative agriculture and high-tech measurement of the result.

introduction of a science-based system of good agricultural practices. The entire system is subordinated to a methodology that encourages sustainable practices on the grounds of regenerative agriculture aimed at improvement of the organic matter content in the soil, enhancing the capture of greenhouse gases and accomplishing permanent storage of greenhouse gases. **Regenerative agriculture** is a system for agriculture based on several different parameters and practices such as:

- minimum tillage,
- use of cover crops and active crop rotation,
- use of organic fertilization,
- health management of crop residues and reduced use of fuel,
- encouraging the implementation of rotational grazing in places with developed livestock breeding
- These practices help improve soil health and lead to increasing the amounts of captured carbon and its sustainable storage in the soil. Additional advantages are the improved infiltration of the water and capture capacity, the increased biodiversity and higher resistance to erosion effects of wind and water. The activities contribute to reducing the carbon footprint and simultaneously stimulate and accelerate the process of sequestration of carbon in the soil. The present methodology is applicable for a wide range of activities and productions – from small farms with low level of technological management of the land to industrial technological production, which uses different tools and approaches for improvement of SOC.

**The methodology operates with conservative and scientific approach for quantitative estimation of soil organic carbon (SOC), which includes:** agronomic assessment of suitability of the agricultural farms, special accredited/validated protocol for georeferenced soil sampling with automatic probe in three depths, laboratory analysis of physical - chemical indicators of the soil samples, by means of an accredited laboratory and drawing up of an individual strategy for application on science-based, good agricultural practices.

## 1. Baseline

**The baseline** of each individual project participant is determined on a cell level and documented, through direct measurement of the carbon content in the soil. No alternatives of the baseline regarding the SOC stocks are admitted. The baseline is an equivalent of the results from the laboratory chemical analysis of OM (Organic matter) and OC (Organic Carbon), through taking a georeferenced **basic soil sample** from each plot admissible for participation in the project. The present methodology guarantees that the quality of the projects and quantitative estimation of the benefits corresponds to the high level of the set goals.

The baseline process before a farmer or plot is included in a project is developed in document PR0101 - Farm Suitability Assessment Checklist in section PR0101-CL. The form provides farmer data, crop details, equipment used and existing practices traced back up to 5 years, ~~equipment used~~. The baseline scenario is defined for each farm registered in the project.

## 2. Added value of the project or additionality

**The added value of the project or additionality** is expressed in the used:

- agronomic recommendations,
- guidelines and activities related to minimum tillage, use of cover crops and active crop rotation,
- optimizing mineral nutrition ,
- use of organic fertilization,
- healthy management of crop residues and reduced use of fuel, as all of them are implemented in an individual strategy for farm management, which leads to increased SOC, compared to baseline – the basic soil sample.

The aim of methodology is to introduce new good farming practices whereby farmers commit to undertaking specific environmental and climate practices or investments that they would not otherwise undertake. This targeted activity includes only supra-legal environmental and climatic conditions as well as all kinds of other good practices that ~~are supra-legal and~~ must be met by farmers.

The baseline before implementation of the project should reflect the legal and market conditions under which the carbon removal activity takes place. If a carbon removal activity is imposed on operators by applicable legislation or does not need incentives to take place, its performance will be reflected in the baseline. A carbon removal activity that generates carbon removal in excess of this baseline due to practices that were not applied by farmers prior to the existence of the project due to various reasons and barriers, including financial, should be considered additional. The certification and issuance of carbon credits in favor of farmers will be an additional financial incentive for them, which will compensate them in connection with the implementation of the new more expensive but gentler practices. Carbon credits issued from the activity of implementing a project on the Methodology are a transferable, tradable instrument that is issued in the name of the farmer. Separately, farmers pay an annual fee per hectare or per cell for sampling and laboratory analyses. The annual fee depends on the types of crops and the size of the fields to be surveyed. It is also possible to pay an administrative fee for filling out documents for which farmers do not have the administrative capacity. The end result is measured through a georeferenced **control soil sample from each cell** from each plot included for participation in the project. In the absence of a project, no change of the baseline is expected – the content of soil carbon is preserved, and it is even possible that it is decreased. The activities on each project, in addition to contributing to the reduction and removal of CO<sub>2</sub> from the atmosphere, also prove and register the storage of carbon in the soils, and lead to soil recovery (improvement of soil health) and biodiversity as well.

Additionality is determined for each project participant separately in PR0101- Checklist for assessment of the farm suitability, KL 0101-4. Data for this assessment is collected from PR0201-Application for registration in project, where farmers declare practices applied for the past 5 years. In KL 0101-4 - Additionality, an assessment of additionality is carried out based on the information provided, compared with the practices that should be implemented under the program.

The additionality assessment confirms the fact that these activities did not reach the farmer before the existence of the project but will be subject to the program.

## 2.1 Non-Common Practice Determination

This section establishes the standardized procedure for demonstrating non-common practice and practice-based additionality of the regenerative management practices (defined as a “bundle” for the purposes of this section) credited under the Methodology.

The procedure ensures that credited activities are demonstrably beyond prevailing agricultural management in comparable agro-ecological contexts and would not occur at scale in the absence of the project’s incentives, technical support, and verification framework.

### 2.1.1 Definition of “Common Practice”

For the purposes of eligibility and crediting under this methodology, common practice refers to the prevailing agricultural management applied in the same agro-ecological region, across comparable farm sizes, production systems, and crop types.

An activity or bundle of activities is deemed not common practice when its area-weighted mean adoption rate within the defined region is below 20%, following the conservative threshold applied by the UNFCCC/CDM Tool for the Demonstration and Assessment of Additionality.

### 2.1.2 Definition of the Credited Practice Bundle

The Methodology defines the eligible “credited bundle” as the concurrent, season-over-season implementation of one or more of the following regenerative management components, together with annual, geo-referenced soil organic carbon (SOC) measure–remeasure at 0–30 cm, 30–60 cm, and 60–90 cm depth intervals, analyzed in accredited laboratories and verified ex-post.:

- Reduced or no-tillage with residue retention (no burning);
- Cover cropping and/or intercropping where agronomically feasible;
- Diversified crop rotations including legumes or deep-rooted species;
- Soil-test-based nutrient management with accurately calculated application requirements for calibrated organic and/or mineral inputs; an
- A bundle of agricultural practices that increase the removal of greenhouse gas emissions (carbon dioxide (CO<sub>2</sub>)) from the atmosphere, thereby generating carbon credits (credited practice bundle). It may include one or more newly introduced regenerative agricultural practices or significantly improved existing management practices, provided that their

implementation leads to demonstrable additional sequestration of soil organic carbon (SOC) compared to the baseline scenario:

- Enhanced practices are considered eligible when the project participant commits to a measurable increase in the intensity, frequency, or quality of already implemented management practices, resulting in increased potential for soil organic carbon accumulation above the levels defined in the baseline management conditions.

### 2.1.3 Method for Determining Non-Common Practice

#### (a) Calculation Rule

The project proponent shall demonstrate that the credited practice bundle is not common practice using one of the following quantitative approaches:

##### 1. Two-Activity Product Rule:

When adoption data exist for the two predominant components of the bundle, the combined adoption rate ( $EA_{bundle,base}$ ) shall be determined as the product of their area-weighted mean adoption rates (The result must be  $<20\%$ ):

$$EA_{bundle,base} = EA_{activity1} \times EA_{activity2}$$

##### 2. Multi-Activity Extension Rule:

When additional activities (e.g., organic inputs) are integral to the bundle, their adoption rates shall be multiplied to produce a conservative combined adoption rate:

$$EA_{bundle,n} = EA_1 \times EA_2 \times EA_3 \dots \times EA_n$$

Where data are unavailable for combined adoption, individual activity adoption rates may be multiplied as a conservative proxy.

##### 3. Upper-Bound Adoption Rates:

When regional data are sparse, national adoption rates or EU-level maxima shall be used as conservative upper bounds for each activity, ensuring that the calculated combined adoption rate does not overstate rarity.

#### (b) Adoption Rate Thresholds

The bundle shall be deemed not common practice when the combined adoption rate remains below 20%,

### 2.1.4 Application to Grouped Projects

- (a) For grouped or programmatic projects covering multiple regions, the non-common practice demonstration shall be performed for at least one representative sub-region at the time of project validation.
- (b) Once demonstrated, the determination shall apply to subsequent project instances within comparable agro-ecological contexts (e.g., similar soil, climate, and crop systems).
- (c) The project proponent shall document that each new region maintains adoption rates below 20% for the core practice bundle.

### 2.1.5 Triangulated Evidence Framework

Quantitative adoption data shall be complemented by triangulated evidence sources confirming that the bundle is not established commercial practice, including:

#### 1.Farm-Level Baseline Data:

Documentation of historical operations (at least five years pre-enrollment), covering tillage frequency, residue management, rotation history, fertilizer and amendment use, irrigation, and winter coverage.

#### 2.Regional Agronomic Intelligence:

Interviews with agronomists, cooperatives, input suppliers, and review of regional extension materials to assess barriers and rarity of combined practice adoption.

#### 3.Regulatory and Incentive Mapping:

Assessment of relevant policies, eco-schemes, and subsidy measures to differentiate voluntary and mandated practices. The presence of an incentive does not equate to widespread adoption.

#### 4.Scientific and Statistical Sources:

Use of credible, verifiable data from recognized sources (e.g., Eurostat, national ministries of agriculture, FAO, JRC, academic publications) to support adoption estimates and corroborate rarity.

### 2.1.6 Handling Partial or Transitional Practices

- (a) Farms exhibiting partial or transitional adoption (e.g., sporadic cover cropping) may be enrolled only if:

- 1.The participant commits to full implementation of the credited bundle prospectively; and
- 2.Subsequent SOC measure–remeasure results confirm a positive verified change in carbon stock.

### 2.1.7 Test Outcome

The Not-Common Practice Test is considered passed when:

- 1.The combined adoption rate of the credited practice bundle remains below 20%;
- 2.Supporting evidence from farm-level, regional, and national sources confirms that concurrent implementation of the full bundle is rare; and
- 3.Annual MRV procedures confirm that credited practices remain additional and not widespread within the regional context.

### 2.1.9 Evidence Sources (Reference)

Acceptable quantitative and qualitative data sources include, but are not limited to:

- **Eurostat:** Tillage and conservation agriculture statistics
- **MAFF (Ministry of Agriculture and Food of Bulgaria):** Agro-statistical surveys and Farm Structure Surveys
- **JRC / ESDAC:** Soil carbon and management datasets
- **FAO / Global Soil Partnership:** SOC monitoring and management reports
- **Peer-reviewed publications and national agronomic studies** validated by competent institutions.

## 2.2 Barrier analysis

The evidence of additionality is based on a comprehensive barrier analysis identifying the main constraints that would prevent the adoption of regenerative agricultural practices in the absence of the project. The analysis includes

- Legal barriers – confirmation that the proposed activities are not mandatory under national or EU legislation and are not required by any existing regulatory framework;

- Financial barriers – demonstration that the implementation of the activities involves additional costs or temporary income reductions that would not be offset without carbon credit revenues;
- Technological barriers – identification of the lack of access to adequate equipment, technical capacity, or agronomic know-how necessary for the application of the new practices.

The barrier assessment is conducted during project validation and is subject to re-evaluation whenever the baseline is updated or when significant legal, market, or technological changes occur.

### 3. Calculation period

**The calculation period for each project** is the period between two points in time during which a change in the carbon reserves is accomplished and said is calculated and documented. In the present methodology, this is the period between two soil samples. The control sampling shall be carried out within the following business year. The standard period is 12 months, but a timeline of between 10 and 14 months is allowed, which is tailored to crop rotation, crop development and weather conditions. "Business year" follows the statutory definition for the country of application. For the territory of the Republic of Bulgaria "Business year" means the period from 1 October of the current year to 30 September of the following year.

The bulk density of the soil shall be determined annually, with measurements taken:

- by soil type;
- for each cadastral area (EKATTE);
- on a representative sample of areas corresponding to the soil characteristics of the respective land unit, with representative soil samples being taken.

Each year, the sample for bulk density is taken from the same areas.

~~The bulk density is examined once and is used for the calculations of the entire monitoring period.~~

Bulk density analyses should be made in accredited laboratory. Bulk Density soil sampling is conducted in accordance with BJC EN ISO 11272. A register of the lands with samples taken for bulk density must be kept.

A bulk density sample is taken for each individual land area by soil type. ~~from the first participant in the Project, whose plots fall within the boundaries of a land area where no data on measured bulk density is available.~~

The bulk density sample is taken from areas of ~~the a~~ Participant implementing a Project ~~that fall within the scope of the Project implementation, with a specific plot selected randomly.~~

Bulk density samples are taken from the three soil layers: 0-30 cm, 30-60 cm, and 60-90 cm, and are sent for testing in an accredited laboratory.

The test results for bulk density from a given land area are recorded and used in calculations for every subsequent project-participant areas (plots) with ~~plots the same soil characteristics~~ falling within the same land area.

The duration of each project is min. 5 business years for the same areas.

### 3.1 Calculating results at the cell level

During the calculation period, results for each cell are documented and reported. During the first reporting period, the results of the first control soil sample are compared with the results obtained from the base soil sample for the content of organic carbon in the soil.

In a subsequent reporting period, the results obtained from soil samples in the current control are compared:

- a) with the results obtained from soil samples in a previous control for cells in which an increase in SOC stocks was recorded in the previous reporting period.
- b) with the results obtained from soil samples in the base year for cells in which there was no change or a decrease in SOC stocks was recorded in the previous reporting period.
- c) with the results obtained from soil samples in a control year where a result above the base year was recorded for cells in which an increase in SOC stocks was recorded in the previous reporting period and in which a decrease in SOC stocks was observed in the next reporting period.

See Table 1 “Calculation of results at the cell level” in the Appendix.

### 3.2 Farm balance

"Net amount of greenhouse gas emissions removed carbon dioxide CO<sub>2</sub>" is equal to "Gross amount of greenhouse gas emissions removed carbon dioxide CO<sub>2</sub>" minus "Total fuel consumption CO<sub>2</sub> equivalent"

"Gross amount of greenhouse gas emissions removed carbon dioxide CO<sub>2</sub>" includes the sum of all cells, positive and negative for the specific calculation period.

"Total fuel consumption CO<sub>2</sub> equivalent" includes the sum of all cells, positive and negative for the specific calculation period.

See Table 2 "Calculation of results at farm level" in the Appendix.

In the calculation method described above, the farm balance is offset year by year. At the end of the project (at the end of the crediting period of a project participant) a overall farm balance is reported. The overall balance of the farm is equal to the net quantities of greenhouse gas emissions removed carbon dioxide (CO<sub>2</sub>) reported at the end of the crediting period

See Table 3 "Possible scenarios of the total balance of the farm" in the Annex.

In cases of a negative balance in the first verification period, the farm is not submitted for verification and no credits are issued. The project can be validated.

When the balance of the farm is positive for the specific reporting period, the farm is submitted for verification and credits are issued. When the balance of the farm is negative for the specific reporting period, the farm can be included in the monitoring report, but no credits are issued. In the case of the cell-level calculation method with a return to the base year or the highest result, and reporting the results based on the balance of the farm, compensations from the buffer fund are not necessary in the case of credits issued in a previous reporting period and a negative balance in a subsequent reporting period. Except for the cases described in Part II, item 9 Buffer.

When the overall balance of the farm is negative, the losses should be covered by a Buffer.

#### 4. Crediting period

**Crediting period and validity of carbon credits issued** - the issuance of carbon credits is the time period during which the impacts on the overall objective can be accounted for, including the observation and monitoring period. The lending period is at least 5 years. The validity of certified carbon removal should depend on the expected duration of storage and the various reversal risks associated with the given carbon removal activity.

To account for this risk, the validity of certified carbon removals generated by carbon farming and soil carbon storage should be subject to an expiry date corresponding to the end of the relevant monitoring period (the credit period). The carbon should then be assumed to be released to the atmosphere unless the economic operator demonstrates the maintenance of carbon storage through continuous monitoring activities as follows:

- After the expiry of the 5-year crediting period, the project participant is given the opportunity to extend the contract for another 5 years. The extension of the contract does not interrupt the certification process, but the baseline should be reviewed and redefined. For the new period, the farm must have the opportunity and potential to introduce new, supra-legal agricultural practices. In this case, the validity is extended by the duration of the contract. Certification and issuance of carbon credits in favor of farmers will continue to be an additional financial incentive for them, which will compensate them in relation to their ability to maintain implemented practices and/or exercise new ones.
- Conclusion of a contract only for monitoring the implemented new agricultural practices and monitoring their correct implementation. In this case, the validity is extended by the period of exercising the monitoring.

All credits generated in result of project implementation are issued "ex-post", that is, as a result of a prepared report and calculations for events that have already occurred, reflecting the real change in carbon stocks in the soil.

At the end of the crediting period and project closure, SOC levels may be increased, unchanged or decreased, taking into account the overall balance achieved at the project participant level.

In case at the end of the crediting period the overall balance at the project participant level shows data on a decline in SOC levels, the declines should be covered by the Buffer.

## 5. Leakage

**Leakage** – the current methodology is strictly conservative, as it refers to facts based on periodic calculations including the stock of nutrients in the soil and does not admit leakages or at least does not create prerequisites. A leakage occurs when the stimulated mechanisms for removals of CO<sub>2</sub> lead to increased emission or decreased absorption in other places, thus reducing the total impact on climate. Leakage conditions must be monitored and documented in a timely manner. In the event of force majeure circumstances or a decline in (SOC) stocks is observed, the Methodology provides for the

accounting of leakages and the respective reduction of the quantities for issuing carbon credits, which will be covered by the buffer account.

## 6. Uncertainty

**Uncertainty** is avoided by introduction of a system of chemical, physical and mathematical calculations, which are the result of accredited laboratory chemical analysis of the taken georeferenced soil samples. All data is recorded, registered and reported in an Integrated system for administration, control and accounting (ISACO<sub>2</sub>) of the „captured“ carbon from plant species – perennial plants, annual crops and other agricultural crops.

### 6.1. Uncertainty Deduction in Carbon Accounting

Projects shall apply a fixed 5% deduction to all net verified removals to account for measurement error, laboratory variability, and sampling limitations. The deduction shall be applied in addition to QA/QC procedures and conservative calculation approaches specified in this Methodology. The 5% deduction is justified by:

1. Robust sampling design and consistent field execution;
2. Use of accredited laboratory methods with documented precision;
3. Multi-layer QA/QC (field, laboratory, and data management);
4. A fixed deduction promotes transparency, predictability, and comparability across projects while ensuring conservative credit issuance.
5. Alignment with prevailing practices of leading carbon standards and international guidance (see IPCC 2006 Guidelines for National Greenhouse Gas Inventories)<sup>2</sup>

## 7. Permanence of the projects

**Permanence** of the projects is secured by the additional activities, which guarantee the absence of reduced produce yield, and even lead to its increase, at the same time contributing to improvement of soil health and biodiversity and to increasing the percentage of humus in the soil. The issued agronomic recommendations also lead to optimization of revenues from agricultural activity. The Methodology offers an

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<sup>2</sup> IPCC (2006). 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 1: General Guidance and Reporting, Chapter 3: Uncertainties. Intergovernmental Panel on Climate Change, Geneva

Methodology for improving and reporting the level of sequestered carbon in the soil in the agricultural sector

opportunity to measure the micro- and macro- elements in the soil for farmers implementing projects and drawing of the relevant maps along with issuance of recommendations based on shared costs. This further encourages farmers to declare their desire to implement a project. The activities listed are related to the impermanence risk management.

## 8. Sustainability of the projects

**Sustainability** of the projects is guaranteed through the approaches detailed above for increasing of the co-benefits.

Each project participant should conduct an initial and periodic assessment of the risk of leakage and take corrective action when an increased risk is identified, so as to ensure the long-term sustainability of the project.

Project developers are also required to account for the risk of over crediting and carbon loss and may develop an additional conservative mechanism for prevention.

### 8.1 Co-benefits for Sustainable Development

This Methodology defines the key social, economic, and environmental benefits resulting from the implementation of regenerative agricultural practices, as well as potential negative effects and the corresponding mitigation measures.

#### 8.1.1 Environmental Benefits

- Increased soil organic matter and carbon content;
- Reduced erosion and improved water retention capacity;
- Conservation of biodiversity and restoration of ecosystem functions.

**Potential negative effects:** local soil compaction or habitat disturbance due to improper implementation of practices.

**Mitigation measures:** agronomic supervision and adaptation of practices to soil and climatic conditions; annual monitoring and corrective actions.

#### 8.1.2 Economic Benefits

- Additional income source for farmers through carbon credit generation;
- Improved resource efficiency and long-term reduction of input costs;
- Diversification of revenues and enhanced resilience of agricultural holdings.

**Potential negative effects:** temporary yield reductions during the transition to new practices or market price fluctuations.

**Mitigation measures:** provision of technical support, flexible crop rotation management, and use of carbon revenues as a financial buffer.

#### 8.1.3 Social Benefits

- Improved occupational safety and working conditions in agricultural operations;
- Promotion of training, capacity building, and knowledge exchange among participants;
- Strengthening of local communities through collaboration and voluntary participation.

**Potential negative effects:** social tensions, unequal benefit distribution, or limited access to participation.

**Mitigation measures:** application of the principles of Free, Prior and Informed Consent (FPIC), establishment of a transparent grievance mechanism, and assurance of equal opportunities and participation transparency.

## 9. Buffer

A centralized non-tradable buffer pool shall be established to mitigate the risk of non-permanence and force majeure events. This mechanism functions as a collective insurance system that safeguards verified soil organic carbon (SOC) removals against rare, large-scale, and unpredictable events that are beyond the control of project participants or the project developer.

### 9.1 Definition of Force Majeure Events

For the purpose of this methodology, force majeure refers to extraordinary circumstances that cannot be reasonably foreseen or prevented, including but not limited to:

- Severe or prolonged droughts;
- Floods or waterlogging events causing large-scale topsoil loss;
- Wildfires;
- Pest or disease outbreaks of regional magnitude;
- Geopolitical disruptions or systemic shocks to agricultural operations.

### 9.2 Buffer Pool Contribution Requirement

All participating farms shall contribute 5% of their verified net removals to the centralized buffer pool. Contributions shall be made at each verification cycle and recorded transparently in the project registry. The buffer pool shall be maintained at the project level, representing a collective contribution equivalent to 5% of total verified removals across all participating entities.

### 9.3 Function and Use of the Buffer Pool

The buffer pool shall only be drawn upon when a verified carbon loss or force majeure event leads to a documented and irreversible reversal of SOC stocks at the farm or regional scale.

All approved buffer claims shall be recorded in the registry, and corresponding buffer credits shall be permanently retired to compensate for the verified carbon loss.

#### **9.4 Governance and Integrity**

The buffer pool shall be replenished continuously with each issuance cycle to maintain its capitalization and functionality over the full project crediting period.

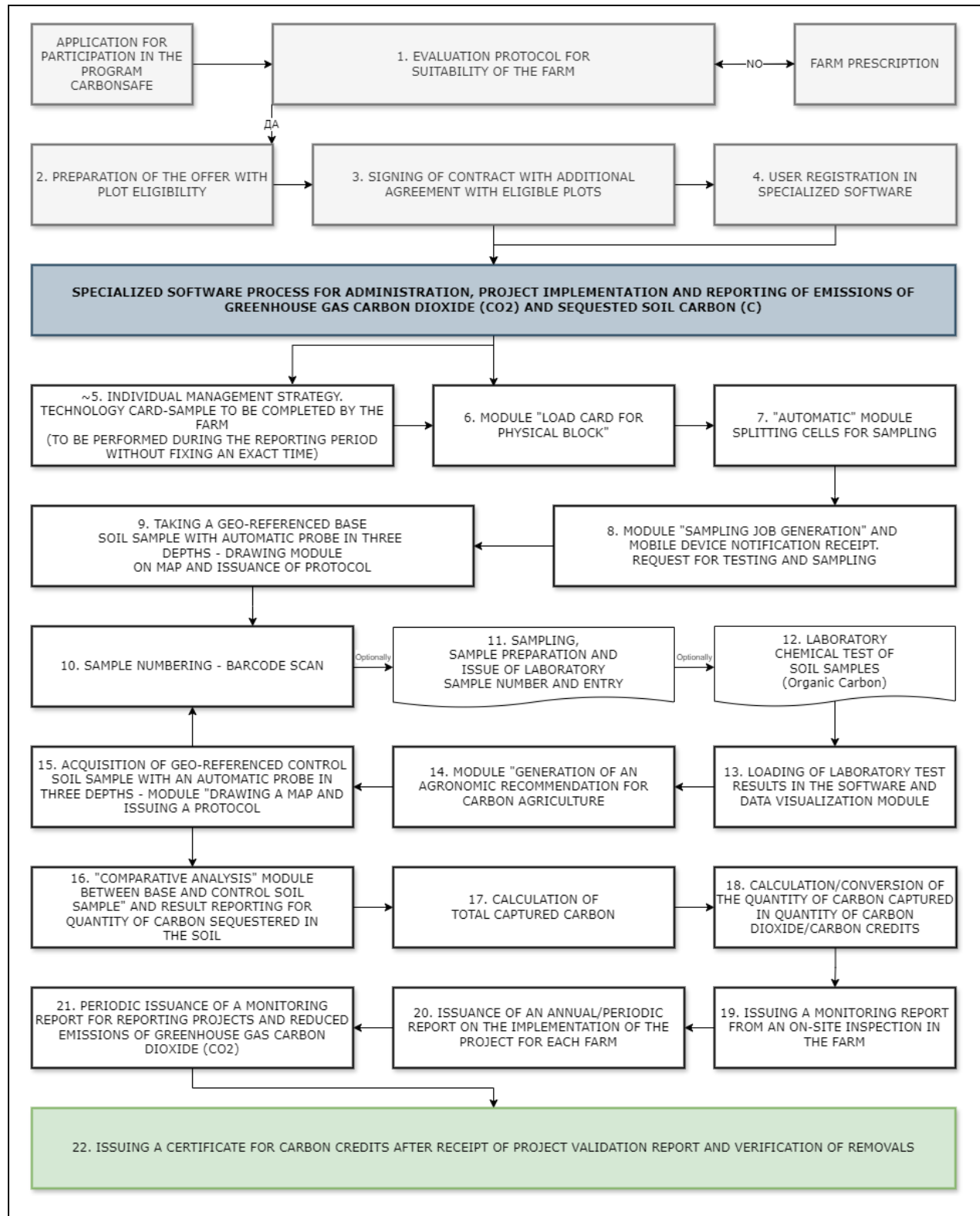
Buffer utilization and retirement records shall be subject to audit and disclosed to ensure transparency and environmental integrity.

### **10. Double reporting**

**Double reporting** of projects and emissions is impossible. Each project is registered with a unique registration code ID, pursuant to Appendix 02 "Procedure for registration and monitoring of projects". The contractors of projects sign a "Declaration for double reporting", part of the "Application for registration in a project" to Appendix 02 "Procedure for registration and monitoring of project", by virtue of which they certify that they are not part of another programme for implementation of a similar project (SOC. If such a fact is ascertained in the process of work, then payments shall not be effected to such projects and they shall be registered into a register of "Bad faith projects", part of Application 02 "Procedure for registration and monitoring of projects". When payments are made and double counting is established, the corresponding amount of issued carbon credits is covered by the provided buffer, which is duly reported in the register. The relevant authorities shall be informed by the due procedure of the attempted fraud.

The process of certification cannot be shorter than 12 months and passes through the various assessment modules of ISACo<sub>2</sub>, as illustrated in Fig. 1.

Fig.1 Process of certification



### III. APPLICABILITY OF THE PROJECTS

The projects encompass all lands in agriculture, which fall within a system of land use and taking into account the relevant national specificities. The project activities will be performed on the same land plot as the baseline. Plots falling into wetlands, peatlands and riverbeds are not allowed - they are not part of the National Land Use System in the country of application. Projects located on the Forest Fund territory are inadmissible. Projects not complying with the requirements set forth in the “Checklist for assessment of the suitability of the farm”, part of Application 01\_Procedure for agronomic recommendations and assessment, are not admissible.

### IV. PROJECT BOUNDARIES

#### 1) Spatial boundary

The spatial boundary covers the impacts of activities that are under the control of the project owner. The owner of the project is the relevant farmer who has legal grounds for cultivating the land. The activities must lead to a reduction in emissions and/or carbon sequestration in the soil, leading to an increased SOC content in the project area. All plots in the control system that leave the project without **a georeferenced control soil sample** shall not be accounted for and are considered inadmissible. If new areas are added to the project, they will be documented and certified as new areas - subject to a comprehensive assessment under the certification process, as shown in Fig.1

#### 2) Time frame

The crediting period of SOC projects will be at least 5 business years, with the possibility of being extended.

#### 3) Greenhouse gases

The main greenhouse gas observed with all project activities is carbon dioxide (CO<sub>2</sub>), which is released when working with the equipment in the field. The carbon footprint resulting from the fuel used by farmers to produce the crops is subtracted from the total amount of soil carbon sequestered (SOC). For the purposes of the present methodology, average consumption rates of diesel fuel are used for mechanized activities on crops and groups of crops for one year - in liters per 1 ha, including artificial and permanent meadows -. The data on average fuel consumption are taken from the MoA Methodology for determining the individual annual quotas in connection with the implementation of

the state aid scheme "Aid in the form of a discount on the value of the excise duty on gas oil used in primary agricultural production" or according to the current regulations in the country of application. Calculations are performed in PR0205 - KL for calculation of sequestered soil carbon (SOC). The conversion into carbon emissions is based on the following equation: 100 l diesel fuel/ha = 340 kg CO<sub>2</sub>/ha. The total fuel consumption (per cell) in tons of CO<sub>2</sub> equivalent is subtracted from the gross amount of tons of greenhouse gas carbon dioxide CO<sub>2</sub> emissions removed by the project and the net amount of tons of greenhouse gas carbon dioxide CO<sub>2</sub> emissions removed is obtained. A coefficient of 3.42 is used to convert the total fuel consumption from tonne/hectare to tonne/CO<sub>2</sub> equivalent.

1l of diesel is equal to 36 MJ (Ordinance No. H-18 of August 8, 2016). 1MJ is equivalent to 95.1 g CO<sub>2</sub> (Methodology for determining the intensity of greenhouse gas emissions from the entire life cycle of fuels and energy of non-biological origin in transport). Therefore  $36 * 95.1 / 1000 = 3.42$

Emissions of the greenhouse gases methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) associated with fertilization and livestock practices can be optionally reported.

## VI. CONTROL AND REPORTING OF RESULTS

The Methodology use an Integrated System for Administration, Control and Reporting (ISA CO<sub>2</sub>) of "captured" carbon from plant species - perennial plants, annual crops and other agricultural crops. The technique involves measuring the amount of "SEQUESTERED" carbon "STORED" in the soil.

The control and reporting of sequestered carbon in the soil is based on a scientific methodology, including agronomic assessment of the suitability of agricultural crops and plant species, a special protocol for georeferenced soil sampling with an automatic probe and chemical laboratory analysis of the soil samples, by means of an accredited laboratory.

Automatic soil sampling is carried out in three soil layers: 0-30 cm; 30-60 cm and 60-90 cm, monitoring the progress of the sampling through an online platform and georeferenced through a mobile application.

The storage of the data for the sampling performed, the issuing of the protocol for the sampling, as well as the mapping and registration of all surveyed areas and the use of a

database management system is a key point in the program, as it allows the integration of spatial and non-spatial data.

The process management system is implemented by software for organizing the information in the form of a database. It includes modules for data entry, verification, storage, retrieval, processing, management, security, etc. It is a set of computer software and hardware for collecting, storing, updating, processing, analyzing and visualizing spatial (geographically referenced) information.

The purpose of the Methodology is to guide, report and measure a purposeful process based on the principles of regenerative agriculture, reducing it to a concrete and quantifiable result, which is materialized through the issuance of a Carbon Credit . The unit of measurement of the Certificate is CARBON CREDIT, which is equal to 272.48 kg. SEQUESTERED carbon, which equates to 1000 kg carbon dioxide CO<sub>2</sub>. Therefore **1000 kg sequestered in the soil carbon is equal to 3.667 CARBON CREDITS. One carbon credit is equal to one ton of the greenhouse gas carbon dioxide (CO<sub>2</sub>) equivalent removed from the atmosphere.**

**Calculation:** the fraction of carbon in carbon dioxide is related to the ratio of their weights or so-called molar masses. The atomic weight of carbon is 12 atomic mass units /12 grams per mole/, while the weight of carbon dioxide is 44 atomic mass units /the molar mass is 44 grams per mole/. ONE TON of sequestered soil carbon is equal to  $44/12 = 11/3 = 3.667$  tons of carbon dioxide (atmospheric) = 3.667 carbon credits. The calculation for each project is carried out in the SOC calculation Checklist, part of Application 02\_ Procedure for registration and monitoring of projects.

## 1. CONTROL AND REPORTING OF SEQUESTERED SOIL CARBON:

System for control and quantitative reporting of the sequestered carbon in the soil based on chemical laboratory analysis of a soil sample in the depth of layers: 0-30 cm; 30-60 cm; 60-90 cm, taken with an automatic sampling probe, attached to ATV, UTV, tractor, pickup truck, or other types of equipment - (agricultural, forestry, or other off-road machine).

The process begins with the submission of the "Application for registration in a project part of PR02. The next step is getting to know the specifics of the farm (types of crops, cultivation methods, applied practices, used soil treatments, fertilization rates, etc.) and preparing a suitability assessment (1) - "Farm suitability assessment checklist" , part of PR 01. If the farm does not meet the main criteria for admission to the program, a

"Prescription for adaptation" (2) is issued, part of PR 01 and its inclusion is postponed until the prescriptions are removed.

The next step, if the suitability assessment has been successfully passed, is the entering into an Administrative Agreement (3) with the farmer, the organization, the municipality, the state, part of PR02 and its entry into the Programme with a unique ID number in (ISACO<sub>2</sub>). The said farmer is entered in the "SOC projects register". The contract has a minimum term of 5 years, and is concluded on a business year basis (from October 1 of the current year to September 30 of the following year/according to the requirements of the respective country). For the participants admitted to the program, an individual strategy is developed for the management of the used areas in the farm (4), part of PR01. Then follows the entry of a user into the software - "Organization/Contracts" module (5), according to PR02. In (ISACO<sub>2</sub>), the data from the concluded contracts are entered, as well as the relevant user access roles in the system.

An essential part of the process is the drawing up of an assignment for automatic soil sampling, part of PR02, which is carried out in the following manner:

In (ISACO<sub>2</sub>), the plots and their boundaries for sampling are entered, as laid down in the contract, and it is possible to add or remove physical agricultural blocks. The introduction of the information about the areas is carried out through the Module "Loading a map for a physical block" (6) in (ISACO<sub>2</sub>), by means of the so-called Shape-files or manual drawing of the plots by loading a ".KML" file from Google Earth. Shape-files are a specific file format, translated shape means a form, i.e. it is a format that "remembers" the shape and position of geographic data. Shape-files are a non-topological (geometric), geographic format for recording the spatial location and attribute information of geographic objects. The Shapefile concept uses five file types with specific extensions. Different file types should be stored together in the same place (in the same directory). They are archived and "uploaded/loaded" together in (ISACO<sub>2</sub>), after which a visualization of the respective plots follows.

When forming the sampling task, the types of crops and the area of the individual physical blocks are taken into account, and each plot is reduced to a separate "CELL" for sampling. A sampling cell cannot exceed 25 ha (3% tolerance is allowed). The division of plots into separate cells for sampling is carried out automatically in the Module "Separation of cells for sampling" (7) in (ISACO<sub>2</sub>).

The methodology for the correct sampling guarantees the objectivity of the soil analyzes and results. For this reason, soil sampling is performed on the basis of georeferenced data, guaranteeing representativeness for the entire area with a methodology for determining micro-area for sampling with software for monitoring all stages of the process according to rules for storage and transportation of the samples.

The drill operator receives the sampling assignment in (ISACO<sub>2</sub>) in the "Mobile application" module (8) in the form of "TASK" and performs the relevant action, according to PR03 "Procedure for automatic georeferenced soil sampling". In the "task", the physical blocks to be sampled and the corresponding crops are loaded, as well as their geo-location. The physical blocks are pre-divided into sampling "cells", which are visualized on the screen of its mobile application. The drill operator - a sounder, proceeds to take a georeferenced BASIC SOIL SAMPLE (9), choosing the path for taking samples from the relevant points, according to the relief, shape and size of the plot.

Sampling with the automatic probe equipped with geo-location software is carried out after entering into a contract with the customer. The sample from each layer of the soil: 0-30 cm; 30-60 cm and 60-90 cm is separated into separate containers on the probe and after sampling from a given "CELL" is completed, each layer /each container is sealed in a separate ziplock envelope. Pre-printed "BARCODE" labels (10) are affixed to each soil sample bag. Next comes scanning of the corresponding barcodes and attachment to the server. The actual sampling process ends with the issuance of a protocol and the sending of the physical samples to the laboratory. The entire sampling process is carried out according to an accredited protocol, accompanied by geo-location of each sample, recording the corresponding coordinates of the specific sample for each layer of the soil.

After the physical acceptance of the soil samples in the accredited laboratory, it is proceeded to a process of sampling and sample preparation (11). Accepted samples are filed under a new label "BARCODE" (laboratory number), which binds the barcode of the field sample already uploaded to the server, which reflects the corresponding depth and geo-location. In this way, there is complete continuity and traceability of the sample path from the field to its acceptance in the laboratory, guaranteeing the anonymity of the sample - eliminating the possibility of manipulation of specific samples. Sample preparation is related to various treatments of the already accepted soil sample - crushing, grinding, burning and homogenization.

The methods of analysis in the Laboratory (12) are verified and accredited and ensure high accuracy of the analyzed results for:

Ø Organic Matter

Ø (Organic Carbon)

After completion of the chemical analysis of the taken BASE soil samples, the obtained results are entered through Module attachment of a file with results (13) (insert xls.file) in (ISACO<sub>2</sub>), according to PR02. The results are entered automatically for each contract, for each physical block, respectively for each "cell" of the sampling, separated by crops. The final result of the chemical analysis reports and measures the amount of sequestered organic carbon in the soil from the respective crop, on 1 ha. The measurement unit is a carbon credit, as 3.667 CARBON CREDITS are identified with 1 /one/ ton of sequestered soil carbon, which is equal to 3.667 tons of atmospheric carbon dioxide CO<sub>2</sub>.

After receiving the laboratory chemical analysis and establishing the amount of sequestered soil carbon (SOC) from the specific crop, a qualified agronomist prepares the relevant recommendations and technological map for carbon farming in Module "Generation of recommendation" (14) of the crop/ plant, which becomes part of the individual strategy for managing the used areas.

For each subsequent economic year, a georeferenced CONTROL SOIL SAMPLE is carried out with an automatic probe at three depths - Module "Map drawing and issuing a protocol" (15), according to PR02. The control sample is taken once every economic year following the year of the Base Soil Sample. The annual control sampling is done according to a schedule, consistent with the type of crop, the crop rotation, the state of the soil and the climatic conditions and the phase of development of the crops that allows the sampling to be carried out. Taking the control soil sample follows the protocol and steps of the basic soil sample.

The difference in the amount of sequestered soil carbon on the date of the control sample, compared to the base sample, is the actual accumulated/sequestered carbon in the soil for a period of one economic year (16) Module "Comparative analysis". The result of the control sample is entered into (ISACO<sub>2</sub>), again checked by a qualified agronomist and becomes part of the individual strategy for managing the areas used.

The released amount carbon dioxide (CO<sub>2</sub>) from the equipment used for the production of agricultural crops is calculated and documented in PR00205 for every cell

Gross CO<sub>2</sub> removal from the project activity is deducted with the emissions of CO<sub>2</sub> from the fuel consumption deployed to calculate the net removal of CO<sub>2</sub> from the atmosphere and carbon stored in the soil.

## 2. QA/QC Procedures

All soil carbon measurements, data processing, and reporting under this methodology shall be subject to a documented Quality Assurance/Quality Control (QA/QC) system. QA ensures that field and laboratory activities follow approved protocols; QC verifies the accuracy, consistency, and traceability of all data used for credit issuance.

Key provisions include:

- **Field QA/QC:** Calibration of sampling equipment, verification of sampling depth and coordinates, and documented chain-of-custody.
- **Laboratory QA/QC:** Use of accredited laboratories, certified reference materials.
- **Data QA/QC:** Validation of input data, version control of datasets, and review of calculations prior to reporting.
- **Governance:** The VVB independently reviews QA/QC records during verification.

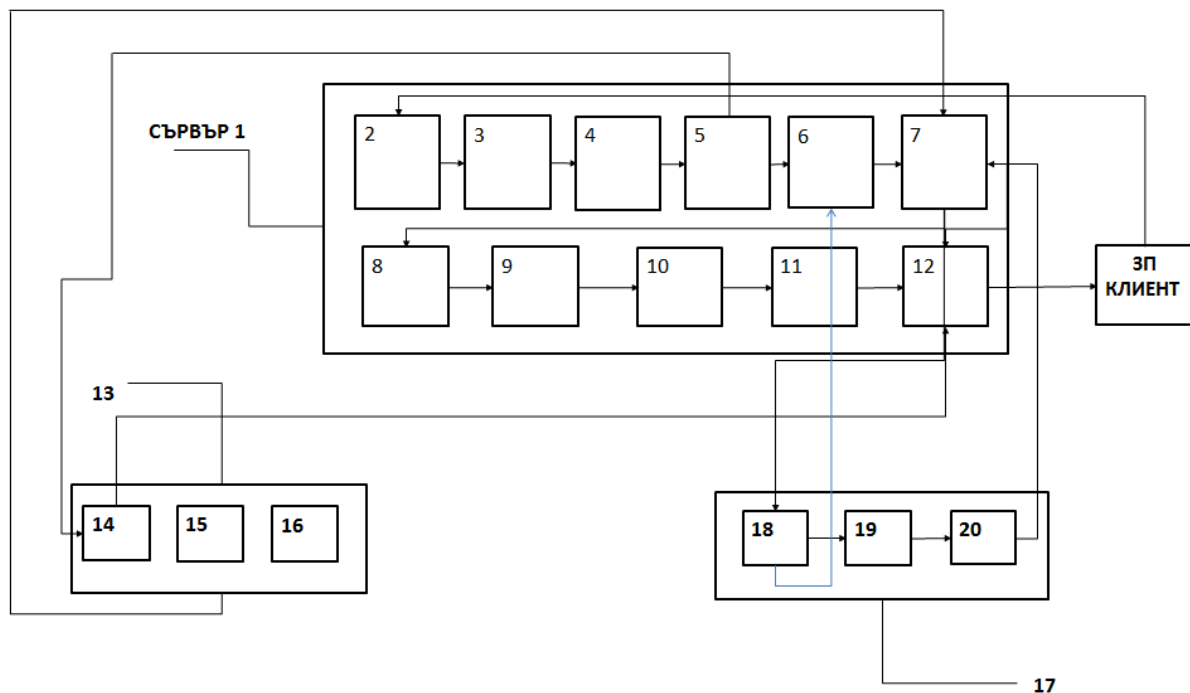
This QA/QC system ensures that all reported soil organic carbon results are scientifically robust, reproducible, and verifiable

## VI. INTERACTION OF THE SEPARATE MODULES OF ISACO<sub>2</sub>

Collected information for the features of the farm of a specific farmer is stored in the module database (2) and an evaluation for suitability is performed and a contract with the candidate is entered into. A unique individual number is entered for each contract. These data are sent to the module for loading of maps (3), outlining plots where data is entered about the boundaries of the plots, their forms and the geographical location. Visualization of the relevant plots is performed, which is sent to the module for separation of the plot into cells 4 where on the basis of the information received from modules 2 and 3 division of the plot into separate cells for sampling is performed. The information from the cell plot division module (4) is sent to the task generation module (5). When formulating the assignment for sampling, the types of crops and the area of the separate physical blocks is taken into account, and each plot of land is reduced down to a separate cell for sampling. The soil sampling is performed based on georeferenced data, guaranteeing representativeness for the entire area with a methodology for sampling micro-area determination. The generated assignment for soil sampling is sent to the visualization data module (6) and through the mobile application (13) of the mobile device of operator (14). In the assignment the physical plots are loaded, divided into cells subject to sampling and the relevant crops, along with their geo-location and are

visualized on the screen of the mobile application (13). The operator takes samples by means of the drill 16, which is mounted on a specialized machine (15), from the relevant points, according to the relief, shape and size of the plot, from each layer of the soil at depths 0-30 cm; 30-60 cm and 60-90 cm. The sample is separated in separate vessels of the drill (16) and after finishing the sampling from each layer, they are sealed in a separate envelope on which a barcode is applied, which is scanned and sent to the module for recommendation generation and issuance of a technological map for carbon farming 7. This information is also sent to the sampling and sample preparation module (18) of the laboratory testing block (17) where the delivered soil sample is crushed, ground, homogenized and a laboratory code is generated, which is sent to the data visualization module (6). The soil sample is moved to the laboratory analysis module (19) where the percentage content of organic carbon is determined and the data is sent to the data storage and retrieval module (20). These data are sent to the recommendation generation module (7) where based on the information received from the mobile application (13), from the data visualization module (6), as well as from the laboratory testing module (17), a recommendation is generated and a technological map for carbon farming is issued, which, through the communications module (12) is sent to the customer/ farmer. The data from the comparative analysis module 8, 9 and 10 are summed up in calculation sheet "Calculation for sequestered soil carbon (SOC)" – PR02/05 where the amount of sequestered soil carbon at the sampling date is reported and compared to the baseline sample. In this way, the actual accumulated/sequestered carbon in the soil for a period of one economic year, the total amount of carbon by the project, the total amount of carbon credits generated by the project are calculated and sent to the report preparation module 11 "Annual/Periodic Report - PR02/ 11". Certificates issued by the Public Register are entered in a register of issued certificates, according to Appendix PR02 "Procedure for registration and monitoring of projects ".

*Fig.2 Diagram of the interaction of the modules in ISACO<sub>2</sub>*



## VII. MONITORING

The periodic issuance of carbon credits should be bound to a certain frequency of monitoring and reviews of the effectiveness of the introduced practices of regenerative agriculture. A monitoring report is foreseen from each on-site inspection and performance review in accordance with the principles and requirements of PR01.

An annual/periodic report is submitted, according to PR02 for each project

Each project developer must collect and document evidence that the methodology's applicability conditions are met at all times by electronically archiving all monitoring data collected during the last crediting period up to 2 years after the end of the crediting period.

Monitoring and reporting of project activities and results shall be carried out on a continuous basis, in accordance with the approved Monitoring Plan and the applicable monitoring cycles.

Verification shall be initiated only after the completion of at least one full monitoring cycle, defined as the availability of two consecutive measurement events that enable the calculation of net greenhouse gas (GHG) removals.

The timing for initiating verification may be determined by the project developer based on the accumulation of verifiable results, provided that:

- all reported quantities are fully documented and traceable;
- double counting is prevented;
- monitoring periods are clearly defined and do not overlap; and
- the approach is transparently described in the Monitoring Plan.

To ensure the economic efficiency and long-term sustainability of the project, verification may be conducted on aggregated results covering multiple monitoring periods or groups of participants, provided that such aggregation does not compromise the accuracy, transparency, or integrity of the Monitoring, Reporting and Verification (MRV) system.

Credits shall be issued only after successful verification by an independent third-party verifier.

## 1. Risk assessment and mitigation

**The methodology and its associated work procedures, the projects and generated removals from project activities must be verified by a third party (VVB).**

Certification systems or other verified third-party systems are taken into account in risk assessment and mitigation procedures when they meet the following criteria:

- ✓ They have the relevant competences of an auditing body;
- ✓ they provide for a publicly available system of requirements ~~that includes at least all the relevant requirements~~ contained in the methodology and the work procedures for it, and make it available for use by third parties;

- ✓ they stipulate that a third party carries out appropriate inspections, including on-site visits, at regular intervals, ~~but at least once every 12 months,~~ to verify compliance with the rules in the methodology and the work procedures for it;
- ✓ they include methods verified by a third party to track the methods and controls provided for in the methodology and the work procedures for it;
- ✓ they include third-party audits to ensure that there are no gaps and deviations in the certification chain, compared to the established and written standards in the methodology and its work procedures.

## VIII. REPORTING AND ISSUANCE OF SERIAL NUMBERS

All projects and the removals they generate must be validated and verified by an independent third-party (VVB).

All projects and the generated removals must be registered in Public Register after receiving a positive ~~validation~~ assessment ~~from a third party~~.

Issuance of carbon credits serial number from the Public Registry is possible only after the data on the removals generated by the project have been verified by a third party.

The project developer submits data to a public registry. The data includes clear identification of the project, clear identification for traceability of verified removals to a specific territory, clear identification of each individual participant, and a clear description of the identification algorithm used.

The public registry issues serial numbers of submitted verified removals.

Carbon credits are issued to each project participant.

## IX. ANNEX

### 1. Table 1 -Calculating results at the cell level

| Cell No. | Base year | Control 1                     |        | Control 2                            |        | Control 3                            |        | Control 4                            |        |
|----------|-----------|-------------------------------|--------|--------------------------------------|--------|--------------------------------------|--------|--------------------------------------|--------|
|          | -         | Method                        | Result | Method                               | Result | Method                               | Result | Method                               | Result |
| 1        | Result    | 1st control <u>minus</u> base | Cell + | 2nd control <u>minus</u> 1st control | Cell - | 3rd control <u>minus</u> 1st control | Cell - | 4th control <u>minus</u> 1st control | Cell - |
| 2        | Result    | 1st control <u>minus</u> base | Cell - | 2nd control <u>minus</u> base        | Cell + | 3rd control <u>minus</u> 2nd control | Cell - | 4th control <u>minus</u> 2nd control | Cell + |
| 3        | Result    | 1st control <u>minus</u> base | Cell 0 | 2nd control <u>minus</u> base        | Cell + | 3rd control <u>minus</u> 2nd control | Cell + | 4th control <u>minus</u> 3rd control | Cell - |

The final result for each cell is formed as a set of individual calculations and comparisons of the results in the three soil layers 0-30, 30-60, 60-90 cm.

## 2. Table 2 - Calculation of results at farm level

|          |           | Net amount of GHG emissions removed carbon dioxide CO <sub>2</sub> = Sum of the results of cell 1, cell 2 and cell 3 |        | Net amount of GHG emissions removed carbon dioxide CO <sub>2</sub> = Sum of the results of cell 1, cell 2 and cell 3 |        | Net amount of GHG emissions removed carbon dioxide CO <sub>2</sub> = Sum of the results of cell 1, cell 2 and cell 3 |        | Net amount of GHG emissions removed carbon dioxide CO <sub>2</sub> = Sum of the results of cell 1, cell 2 and cell 3 |        |
|----------|-----------|----------------------------------------------------------------------------------------------------------------------|--------|----------------------------------------------------------------------------------------------------------------------|--------|----------------------------------------------------------------------------------------------------------------------|--------|----------------------------------------------------------------------------------------------------------------------|--------|
| Cell No. | Base year | Control 1                                                                                                            |        | Control 2                                                                                                            |        | Control 3                                                                                                            |        | Control 4                                                                                                            |        |
|          | -         | Method                                                                                                               | Result | Method                                                                                                               | Result | Method                                                                                                               | Result | Method                                                                                                               | Result |
|          | 1         | 1st control <small>minus</small> base                                                                                | Cell + | 2nd control <small>minus</small> 1st control                                                                         | Cell - | 3rd control <small>minus</small> 1st control                                                                         | Cell - | 4th control <small>minus</small> 1st control                                                                         | Cell - |
|          | 2         | 1st control <small>minus</small> base                                                                                | Cell - | 2nd control <small>minus</small> base                                                                                | Cell + | 3rd control <small>minus</small> 2nd control                                                                         | Cell - | 4th control <small>minus</small> 2nd control                                                                         | Cell + |
| 3        | Result    | 1st control <small>minus</small> base                                                                                | Cell 0 | 2nd control <small>minus</small> base                                                                                | Cell + | 3rd control <small>minus</small> 2nd control                                                                         | Cell + | 4th control <small>minus</small> 3rd control                                                                         | Cell - |

The net amount of removed greenhouse gas emissions of carbon dioxide CO<sub>2</sub> is calculated based on the total balance of the farm for the relevant reporting period.

### 3. Table 3 - Possible scenarios of the overall balance of the farm

|             | Base year      | Control 1 | Control 2 | Control 3 | Control 4 |
|-------------|----------------|-----------|-----------|-----------|-----------|
| Scenario 1  | not applicable | +         | +         | +         | +         |
| Scenario 2  | not applicable | +         | +         | +         | -         |
| Scenario 3  | not applicable | +         | +         | -         | -         |
| Scenario 4  | not applicable | +         | -         | -         | -         |
| Scenario 5  | not applicable | +         | -         | +         | -         |
| Scenario 6  | not applicable | +         | +         | -         | +         |
| Scenario 7  | not applicable | +         | -         | +         | +         |
| Scenario 8  | not applicable | +         | -         | -         | +         |
| Scenario 9  | not applicable | -         | -         | -         | -         |
| Scenario 10 | not applicable | -         | -         | -         | +         |
| Scenario 11 | not applicable | -         | -         | +         | +         |
| Scenario 12 | not applicable | -         | +         | +         | +         |
| Scenario 13 | not applicable | -         | +         | -         | +         |
| Scenario 14 | not applicable | -         | -         | +         | -         |
| Scenario 15 | not applicable | -         | +         | -         | -         |
| Scenario 16 | not applicable | -         | +         | +         | -         |