



LIFE Project Number
LIFE12 ENV /IT 000719

Inception Report
Covering the project activities from 01/07/2013 to 28/02/2014

Reporting Date
03/03/2014

LIFE+ PROJECT NAME or Acronym
LIFE+ CarbOnFarm

Data Project

Project location	Italy
Project start date:	01/07/2013
Project end date:	01/07/2018
Total budget	€ 3,051,265
EC contribution:	€ 1,495,027
(%) of eligible costs	49.24%

Data Beneficiary

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REQUIRED STRUCTURE:

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2. List of abbreviations

SOM: soil organic matter; OC: organic carbon; GHG: green house gases; CO₂: carbon dioxide; N₂O: nitrous oxide; GIS: geographic information system

3. Executive summary (max 3 pages)

3.1. General progress

The LIFE project CarbOnFarm is started on 1st July 2013. As indicated in the proposal the large part of project activities, focused on the application of sustainable SOM managements, will begin with the set-up of project sites on March 2014. Therefore the first period was mainly dedicated to the management and organisation of the project (Action A.1 and E.1) and to the preliminary implementation actions (B.1 and B.2). Notwithstanding the problems related to the partnership and to technical drawbacks (please refer to the next point 3.3 and to detailed explanations given at point 5 in the present document) all the activities whose onset was planned for the start up of the project, were launched on schedule. The main activities started in the first period are: *Technical planning (A.1), Set up of a composting plant and transfer of 'on farm' composting technologies (B.1), Set up of laboratory facilities for the production of biomimetic catalyst (B.2), Monitoring of composting processes and characterization of compost quality (C.1), Monitoring of soil organic carbon stabilization and the improvement of physical and biological soil fertility (C.2), Monitoring the environmental and economical sustainability of proposed strategies (C.5), Project website (D.1), Life+ notice boards, project leaflets, informative technical reports (D.2), Press Conferences and workshop/demonstration days (D.3), Networking activities with other LIFE+ projects (D.8), Technical, administrative and financial management and Monitoring of the project progress (E.1).*

3.2. Assessment as to whether the project objectives and work plan are still viable.

In order to face with both administrative and technical problems (please refer to the next point 3.3 and to detailed explanations given at point 5 in the present document), the management board have provided all efforts in order to, either, avoid or limit the possible delay in the achievement of project actions.

Since the project is based on the application of innovative SOM management practices that will require the setting up of necessary preliminary Implementation actions, an adequate time interval has been inserted at the start of the project to face with the most probable unforeseen delays. These preliminary Implementation actions correspond to the build-up of a prototype for the on-farm composting systems (Action B.1) and to the development of an *in-house* synthesis for the attainment of biomimetic catalyst (Action B.2). Both preliminary Implementation actions were started timely with respect to the indication included in the proposal, and are expected to comply with the deadlines included in the proposal i.e. to achieve the quantitative objectives and allow the attainment of the subsequent Implementation action B.3 (please refer to indications in the point 5.1.2 and 5.1.3 of the report). Specifically the realization of the

infrastructure for the prototype is in course and the composting activity is expected to start in April/May 2014; secondly, suitable amounts of biomimetic catalyst will be delivered for the soil amendment related with the innovative SOM management at the project sites of University of Napoli and Torino, expected for end April 2014 with the preliminary tillage activities for maize cultivation. Since these activities represent an effective innovation for the conventional understanding of SOM management in the current farming systems, a possible occurrence of technical problems have hence been considered in the preparation of the proposal. In fact, appropriate contingency plans, such as those already included in the proposal, have been activated for those actions that require or will require a possible modification respect to the basic programme (Please refer to the description for Actions B.1 and B.2 listed, respectively, in the point 5.1.2 and 5.1.3 of the present document). The set up of project sites (Action B.3) and the monitoring and dissemination activities, were started or will start in accordance with the project indications, and are expected to deal with the project objectives (please refer to the specific reference provided in the paragraph 5 of the report).

To solve the administrative problems with the minimum effect on the organization and the timing of the project and the maintenance of the financial framework without any budget modification, a request for an amendment of the Grant Agreement will be submitted to the Commission in conjunction with the presentation of the Inception report (please refer to the following point 3.3). The use of contingency plan and the modification of the Grant Agreement, were established by the Project Manager in close coordination with the Technical and Financial management of Associated Beneficiaries and discussed, outlined and approved during the Project Committee meetings.

As a consequence of the project management and of the decisions taken to counterbalance the technical and administrative inconveniences, at present both project objectives and deadlines included in the original proposal are still viable.

3.3. Problems encountered.

The main drawbacks encountered in the initial phase are of two types: administrative/organisational and technical.

The administrative/organisational problems are related to the role of the two Beneficiaries the farmers organization OP Terra Orti (Terra Orti) and Regione Basilicata (REGBAS):

- the participation of the farmers organization named Terra Orti is related to the realization of the prototype for on-farm composting systems (Action B.1) and to the subsequent application of sustainable SOM management based on the application of high quality compost derived from the on farm recycled biomasses. The inclusion in the proposal of this organization is essential for the impact of the project actions, related to compost application, on the local agricultural territory, with the practical demonstration of feasibility of sustainable SOM managements based on the economical and environmental valorisation of local agricultural by-products and biomasses. As indicate in the proposal, the realization of the prototype has to be achieved in the first part of the project, in order to produce the compost for the SOM management. However for the administrative point of view, the building permits and the sanitary authorizations, from local public authorities, for the construction of infrastructures and for the management of biomasses and compost could not be delivered to the Terra Orti organization. All the administrative licenses could only be assigned to individual agricultural companies, that forms the association, which are the legally owner of the lands. Since the individual associated have a different legal status respect to the whole Organization, the prototype have, hence, to be realized by the land owner. This imply that the expenses related to the prototype could not be directly sustained by the Terra Orti with the consequent risk related to the ineligibility of the project costs.

In order to overcome this problem and to avoid any modification to the financial framework and to the project budget and to maintain both project strategies and objectives, the management board of LIFE CarbOnFarm has conceived the possibilities to require the modification of the partnership in the Grant Agreement, with the replacement of Terra Orti organisation with a

single associated of the Terra Orti organisation, as Beneficiary of LIFE CarbOnFarm project. The management board of Terra Orti has identified the associated agricultural company to be included in the LIFE CarbOnFarm Project. This agricultural company, named Prima Luce, will undertake all the technical and financial obligations included in the original proposal. The LIFE CarbOnFarm project plan will not be modified; the associated Prima Luce will carry out the realization of the prototype for on farm composting systems and will produce the compost for the SOM management. The Terra Orti organisation will still contribute to the project providing the biomasses for compost production and the plots for the application of the project strategies.

In order to limit the delay respect to project schedule, the Project manager with the agreement of the all Beneficiary's responsible, have decided to start the procedure and the activity related to the build-up of infrastructure of the prototype and all the activities related to the on farm composting. Therefore no particular problems or delays are expected for the completion of the prototype and for the start of on farm composting cycle, that are scheduled for April /May 2014. Please refer to the description for Action B.1 in section 5.1.2 in the present report, for planned activities associated to this issue.

-With regard to the Public beneficiary Regione Basilicata, its role in the project was heavily reduced during the revising process of the proposal. In fact the Regione Basilicata was involved in the original Action C.5 "Estimation of carbon sequestered in soils" that was completely removed by the Commission during the revising process. The actual role of the Public Beneficiary Regione Basilicata is therefore essentially related to communication and dissemination activities. To this respect the Regione Basilicata has an operative agency (Lucana Agency for Innovation and Development in Agriculture -ALSIA) specifically dedicated to the dissemination and innovation in agricultural sector. The involvement of ALSIA agency in the project will improve the operational and functional management of project activities and the efficiency of the communication and dissemination actions. However since the ALSIA agency is a Public company with a proper distinct legal status it could not serve as subcontractors in External assistance for the Regione Basilicata (as also specified by the Official note of EC ARES(2011) 409702 11 04 2011). The direct inclusion of ALSIA agency during the revising process was not possible since the company was without a legal representative and was under the Regional control. Presently the ALSIA agency has a proper representative and may be directly involved in the project with a modification of the partnership of the Grant Agreement without any change in the technical and financial obligations of project activities

The technical drawback is related to the Action B.2 "Set up of laboratory facilities for the production of biomimetic catalyst". This action is under the responsibility of the Coordinating Beneficiary Cermanu and is focused on the synthesis and the attainment of target amounts of the porphyrin-based catalyst for the application of innovative SOM management in the subsequent implementation Action B.3. Currently the delay in the implementation of the new laboratory of the Dept. of Agriculture of University of Napoli, has prevented the realization of the pilot plan for the scale up of the synthesis of the biomimetic catalyst. Therefore, as indicated in the specific contingency plan of the proposal, a previous attempt was made to develop an in house synthesis of the biomimetic catalyst, outsourcing to an external company a feasibility study in compliance with the indications contained in the Art 8 of LIFE Common Provision. The activity was started on schedule with the proposal, under the supervision of the Researcher of Cermanu specifically dedicated to this action. Although being promising, the first results of this study do not provide adequate evidences for the attainment of required amounts of biomimetic catalyst for SOM managements (please refer to the specific point 5.1.3 and the associated annex). The CERMANU is then proceeding to the acquisition of the catalyst from the specialized international companies in compliance with the project objectives and following the obligations stated in the LIFE Common Provisions. No modification are expected nor for

the objectives and deadlines neither for the total budgeted costs associated to this action. Please refer to the explanation in point 5.1.3 for the contingency plan conceived for Action B.2

4. Administrative part

4.1. Description of project management

In compliance with the proposed schedule, a technical planning was activated at the project start as Preparatory action (Action A.1). The Grant Agreement of the Project LIFE12 ENV/IT 000719 was signed on 08 August 2013 (Communication from the EC received on 13/08/2013 Ares(2013) 2473314). Consequently the initial payment of EC contribution (40% of total EC contribution) was received by the Coordinating Beneficiary CERMANU for a global amount of €598,010/80. The administrative staff of CERMANU has requested in the early phase of the project the specific National Project unique code (CUP) for the financial traceability (LIFE CarbOnFarm CUP E78C12000150006), assigned by the National Authority on 08/07/2013. This code was transmitted to each Associated Beneficiary with the commitment to include it in each financial document of the project, together with Project Code, Acronym and Logo; to this purpose a specific stamp was developed by the graphical unit of the Associated Beneficiary RECAMP and transmitted to each Beneficiary for both electronic and hard version (please refer to **Annex 7.5a Stamp and Logo for LIFE CarbOnFarm**).

Two Project Committee Meeting were organized on the 18th July 2013 and on the 25th November 2013 by the Project manager and the staff of the Cermanu at the Dept of Agriculture in Portici with the participation of all the technical and financial representatives of each associated beneficiary. The coordination has been initiated since the beginning of the project, with a constant monitoring of the project activities. The Project manager uses weekly contact with the various partners primarily through e-mail (about 20/25 contacts per month) and telematic conferences. Accounting systems based on the LIFEplus financial reporting documents were activated after the first Project Committee meeting Specific telematic conferences with the administrative staff of Associated Beneficiaries were dedicated to the activation of the Registration systems for the Time sheet and for the Financial reporting documents.

The project coordinator and the administrative staff of CERMANU have carried out specific meetings with the representatives of the Beneficiaries Terra Orti and Regione Basilicata to deal with the organisational problem related to the partnership.

The project manager had frequent meetings with the Management of Beneficiary REGCAMP for the development and organization of Project website (Action D.1). Each beneficiary was involved in the publication of specific deliverables foreseen in the proposal (please refer to the attached file *Deliverables* in the specific annex 7.2). Specific working groups were defined for the organization and performing of Implementation action B.3 and for the networking related with coordination and achievement of monitoring and dissemination actions, under the supervision of respective Project responsible. To improve, both, effectiveness and the internal monitoring of project activities, the administrative responsible of Associated beneficiary “Terra Orti/Prima Luce” in coordination with the Project manager has developed a web planning platform dedicated to the CarbonFarm project for the exchange of information, data, and updating on project activities and for the call of the specific working group meetings.

The Project manager has activated from the early stages of the project the communication with a periodical reporting activity, with the representative of the External Monitoring team (LIFE Astrale Timesis) assigned by the Commission. Two project representatives, the project manager Dr. Riccardo Spaccini and the responsible of Associated Beneficiary UNIBAS Dr. Giuseppe Celano, attended the LIFE Kick Off meeting held in Rome on the 8th November 2014. An official visit of the representative of the External Monitoring team was held on

December 9, 2013 at the CERMANTU in the Department of Agriculture, University of Naples, with the participation of the responsible for coordinating and associated beneficiaries. The initial Press Conference of the LIFE CarbOnfarm project (Action D.3) was organized by the responsible of Communication actions (REGBAS/ALSIA, and REGCAMP) in coordination with the staff of CERMANTU, with the involvement of all the representatives of each Associated Beneficiary. The press Conference was held at the Congress Center of University of Napoli Federico II in Napoli, the 24th February 2014. The list of invited stakeholders is enclosed with the annex **7.5i**

4.2. Organigramme of the project team and the project management structure

Management board:

- **Project manager:** Riccardo Spaccini CERMANTU

-**Technical management:** CERMANTU Prof. Alessandro Piccolo; AGROSELVIT Prof. Carlo Grignani; CRA ORT Dr. Massimo Zaccardelli; REGBAS/ALSIA Dr. Rocco Sileo; REGCAMP Dr. Amedeo D'Antonio; TERRA ORTI/PRIMA LUCE Mr. Demetrio Esposito; UNIBAS Dr. Giuseppe Celano

- **Administrative staff:** CERMANTU Dr. Antonella Aprea-Executive secretary, Mrs Valentina Gagliotti-Administrative technician; AGROSELVIT Dr. Loredana Olivarelli-Administrative manager; CRA-ORT Antonio Corbisiero-Administrative manager; TERRA ORTI/PRIMA LUCE Ilario Doto- Administrative manager; UNIBAS Loredana Bianco-Administrative manager; REGCAMP and REGBAS/ALSIA internal administrative officers

In the first Project Committee meeting all the responsibilities for each action and sub-action have been assigned to the representatives of Associated and Coordinating Beneficiaries as reported in the proposal. Each project action has a reporting manager; for those actions that will take place simultaneously at the different project sites and in the three involved regional territory, each Beneficiary will be responsible for the implementation of specific action/sub-action at the proper project sites and/or in the specific territory. The list and contacts of specific responsible individuated for each action and sub-action is enclosed in the Project description on the LIFECarbOnFarm website. Please refer to the attached file "*Management chart*" (annex **7.3**) for the scheme of the management structure.

4.3. Partnership agreements status (incl. date of signature) and key content

As indicated in the previous paragraphs a modification of the Grant Agreement with respect to the partnership, will be submitted to the Commission concomitantly to the Inception report. However, in compliance with the obligations contained in the Common Provisions, pending the decision of the Commission on the requested amendment of the Grant Agreement, all the partnership agreements were completed with each of the original Beneficiaries. In compliance with the obligations included in Common Provision and with the indication of specific partnership agreement, the Coordinating Beneficiary has provided to the transfer of the funds related to the first 40% of EC contribution to the Associated Beneficiaries. In this respect, pending on the decision of the Commission on the requested modification of the Grant Agreement concerning the possible replacement of Terra Orti and Regione Basilicata with the company Prima Luce and the Agency ALSIA, a suspension of the payment of EC contribution to the Associated beneficiaries Terra Orti and Regione Basilicata was decided by the project manager and the project management board in the second Project Committee meeting.

With reference to the administrative note included in the communication sent by the Commission on 14/01/2014 (Ares(2014)64258), the project manager and the responsible of Coordinating and Associated Beneficiaries have acknowledged the request of the Commission, thereby modifying the partnership agreement with the inclusion of a clear

temporal rule related to the obligation of Associated Beneficiary to furnish the administrative and financial supporting documents to the Coordinating Beneficiary (please refer to Annex 7.1)

Dates of signature of partnership agreements

CERMANU-RECAMP 30/09/2013

1st payment (40% of EC contribution €24,444) **4/11/2013**

CERMANU-AGROSELVIT 23/10/2013

1st payment (40% of EC contribution €93,484) **6/11/2013**

CERMANU-UNIBAS 14/11/2013

1st payment (40% of EC contribution €98,184) **26/11/2013**

CERMANU-CRA ORT 17/02/2014

1st payment (40% of EC contribution € 82,498) **25/02/2014**

CERMANU-REGBAS 24/02/2014

CERMANU-TERRA ORTI 19/02/2014

Please refer to attached file (*LIFE12 ENV/IT 000719 LIFE CarbOnFarm Partnership agreement checklist*) (annex 7.1), for a sketch of key content of the Partnership Agreements

5. Technical part

The main objective of the project is the improvement of SOM quantity and quality in agricultural soils, achieved through the application of environmental sustainable methods of SOM managements. The CarbOnFarm project intend to address the basic requirements concerning the sustainable use of agricultural soils through the restoration and preservation of soil functionalities, the valorisation of the economical and environmental role of soil resource in the agro-ecosystems and the improvement of agricultural biomasses recycling. An important target of the project is to promote the productive and economical valorisation of residual biomasses from the local agricultural activities to reach a high quality compost, achieved also with the adoption of on-farm composting facilities (Action B.1). As a concurrent objective, the application of eco-friendly green chemistry product will strengthen the in situ sequestration of SOC with a further stabilization of SOM (Action B.2). These activities will meet the main goal of the project which is the improvement of SOM quantity and quality in agricultural soils. This will be achieved through the application of environmental sustainable methods of SOM managements in typical regional farming systems (Action B.3). This action will promote the sequestration of SOC and the restoration of SOM function thereby involving a decrease of GHG emissions and combining the maintenance of crop productivity with lower energetic inputs. The adoption of specific monitoring actions (Actions C.1, C.2, C.3, C.4, C.5, C.6) has been conceived for the acquisition of a suitable array of data concerning the SOC quantity and quality, GHG emission from cultivated soils, soil stability, crop productivity as well as the environmental, energetic and economical sustainability of the applied methodologies. The dissemination of the results is aimed to act as suitable way of demonstrating that the utilization of recycled biomasses in agricultural activities may efficiently combine environmental protection with crop productivity, emphasizing their exploitation as important local bioresources in terms of C sequestration, maintenance of soil functions and saving of energetic inputs.

5.1.Actions (please follow the structure of your proposal).

5.1.1. Action A.1/E1 *Technical planning/ Technical, administrative and financial management and Monitoring of the project progress:*

Proposal start date: July 2013	Proposal end date: July 2018
Actual start date: July 2013	Actual end date: July 2018

please refer to the previous description of project management in section 4 of the report. With respect to the initial technical planning all the associated deliverables were completed: *detailed working protocols for C.1, C.2 and C.3 actions; selection of composting plant for farm sites located in Piemonte region; selection of commercial farm site, as second project site, for project activities in Piemonte region; technical design of on-farm composting facility at the project site of beneficiary TerraOrti/Prima Luce.* Please refer to the respective attached files in annex 7.2. As indicated in the proposal the initial technical planning is merged in the technical and financial management of Action E.1

No changes are expected with respect to the milestones and the timing of reporting activity indicated in the proposal

5.1.2. Action B.1 *Set up of a composting plant and transfer of 'on farm' composting technologies:*

Proposal start date: July 2013	Proposal end date: July 2018 (to continue)
Actual start date: July 2013	Actual end date: July 2018 (to continue)

With respect to the scheduled program for the Action B1, in the proposal (pag. 44) and in the associated Gantt scheme, it was reported as end date, the IV trimester 2014. This milestone has to be referred to the transfer of composting activities, whereas the utilization of the prototype for the production of compost, as indicated in the proposal, will continue for at least five years after the end of the project.

This action is related to the realization of on farm composting system at the project sites of the Associated Beneficiary TerraOrti/Prima Luce, and to the production of on farm compost for the application of SOM management in Implementation action B.3.

The prototype will be located in the agricultural farm Prima Luce, associated of Terra Orti organization. All the administrative authorizations issued from the local specific authorities, related to the required infrastructures, have been obtained without problems and delay. The build up of the prototype is started timely with the deadline indicate in the proposal, on November/December 2013. Presently the basement of the infrastructure has been accomplished and is starting the implementation of roofing system (please refer to Annex 7.5b for an exemplificative illustrations of the work progress). As previously indicated in the Executive summary (3.3) in the present report, this activity is associated to an administrative/organisational problem related to the permits and authorizations for the realization of the prototype and the compost management, and with the consequent correct assignment and eligibility of associated costs. In order to overcome this problem a request of modification of the Grant Agreement, regarding a possible change in the partnership, will be submitted to the Commission, concerning the replacement of Terra Orti organization with its associated farm company Prima Luce, as Beneficiary of the LIFE CarbOnFarm project. This modification will not produce any changes neither in the financial obligations nor in the technical objectives, for, both specific activity and for the overall project. The company Prima Luce will undertake the technical and financial obligation included in the Project LIFE12 ENV/IT 000719, currently assigned to the Beneficiary Terra Orti. However, pending the final decision of the Commission on the modification of the Grant Agreement, the realization of the

infrastructure is in course and the procedures for the acquisition of the specific machinery associated to the prototype and the set up of on farm composting procedure, have been activated in compliance with, both, the Project statements and with the obligations included in the LIFE Common Provisions. Actually the acquisition of chopper for pruning residues, required as source of ligneous stabilizing agent of composting biomasses, is being finalized. As indicated in the proposal a conceivable delay of about one/two month may be expected for the effective transfer of composting procedures and for the attainment of the first compost amounts respect to the Milestones indicated in the proposal for B.1 activity (15 April 2014). This possible delay is not expected to produce noticeable effect on the subsequent Implementation action B.3. In fact the first compost application on the project site of Terra Orti/Prima Luce has been planned for the end of the III semester 2014 on orchard system (please refer also to the point 5.1.4 Action B,3 and to point 5.1.5 Action C.1) Moreover as indicated in the contingency plan of the proposal, in order to prevent any technical problem related to the start of on farm composting system and with the effective transfer of acquired experiences, the compost amount required for the initial start up of SOM managements at the project site of Terra orti/Prima Luce may be fulfilled with an external source of compost materials. In the First Project Committee meeting, held in the initial technical planning action, the management board has then decided to allocate a stock portion of the *on farm* compost produced in the University farm of Castel Volturno to meet the possible initial requirement of the project site of Terra Orti/Prima Luce.

5.1.3. Action B.2: *Set up of laboratory facilities for the production of biomimetic catalyst* (please find herewith enclosed the reply to the request of clarification included in the communication sent by the Commission on 14/01/2014-Ares(2014)64258):

Proposal start date: September 2013	Proposal end date: March 2017
Actual start date: October 2013	Actual end date: July 2018 (to continue)

With respect to the scheduled program for Action B.2, in the proposal and in the associated Gantt scheme, it was reported the I trimester 2017 for the last soil application of biomimetic catalyst. Actually the CERMANU has decided to continue the application on innovative SOM management also after the end of the LIFE project. Therefore the corresponding end date has been postponed.

The objective of this action was two-fold: a possible development of a in-house procedure to produce the porphyrin-based biomimetic catalyst and the attainment of the biomimetic catalyst for the application of innovative method for SOC sequestration as sustainable SOM management in the subsequent Implementation action B.3. As also indicated in the previous paragraph (section 3.3) the “in house” scale up of synthesis process for the biomimetic catalyst could not be realized by the coordinating beneficiary CERMANU, for an unforeseen delay in the delivery of the new laboratory facilities from the University of Napoli, which has totally prevented the set up of the pilot plant required to carry out the chemical synthesis processes and to comply with the National safety rules for chemical laboratories. In order to maintain the goal of developing a synthesis procedure, the specific emergency plan attached to the proposal has been activated, and the action was started operatively with a two weeks delay in respect to the time limits proposed in the project (Milestones B2 action- onset of laboratory facilities for synthesis of biomimetic catalyst 1/11/2013). To this purpose, the CERMANU has entrusted to a specialized external company (SienaBiotech), in accordance with article 8 of the Common Provisions, the task of carrying out a feasibility study, to be completed within a period of three months (November 2013 –January 2014), under the supervision of the Technical Manager of CERMANU (Prof. A Piccolo) and of the Researcher of Cermanu specifically dedicated to this action (Dr. F. Sannino). The results of this study (please refer to Attached file in Annex **7.5c** *Final Report on Feasibility studies for Action B.2*)

do not provide adequate evidence for the achievement of quantitative targets of biomimetic catalyst in the correct time, for SOM management in Implementation action B.3. Therefore the CERMANU, responsible of the Action B.2, in coordination with the technical managements of Associated Beneficiaries, is proceeding with the acquisition of the required amounts of porphyrin for the application of innovative SOM management in the Implementation action B.3 at the project sites of University of Napoli and Torino, by specialized international companies (please refer to attached files in Annex 7.5d for the specific quotations received for this issue).

This modification is not expected to produce any change, nor for the budgeted costs (97.340 Euro) allocated to this Action, neither for the objectives and deadlines reported in the project, since as indicated in the proposal, a sufficient buffer time was envisaged before the set-up of project sites and soil application of biomimetic catalyst (please refer also to the following point 5.1.3 Action B.3)

Moreover the CERMANU will still continue to attempt to find an in house methods for the synthesis of the biomimetic catalyst, by exploring recent eco-friendly chemical approaches and technologies focused, for instance, on the so-called “click” chemistry (please refer to the attached file in Annex 7.5e). The use of biomimetic catalyst as soil conditioner, for SOC sequestration, soil remediation etc, is, in fact, a target mission of the Environmental sector of CERMANU, which was involved in this topic for more than fifteen years, with the realization of dedicated research projects and the development of a specific national and international patents. As an evidence of this competence please refer to the attached list of reference publications in Annex 7.5f; in this respect the project manager of LIFE CarbOnFarm will participate to the Green Carbon Conference, to be held in Brussels from 1 to 3 April 2014, with the presentation of previous preliminary results based on SOC sequestration in agricultural soils following the application of porphyrins-based catalyst as soil conditioners.

Finally, in order to continue the activities related to the application of SOM management strategies after the end of the LIFE CarbOnFarm project, an adequate amounts of biomimetic catalyst have been already set aside.

The Action B.2 will merge in the Implementation action B.3 with the application of innovative SOM managements for SOC sequestration. The associated deliverables, therefore, correspond with the start-up of the field activities in the two University farm involved in the project, with the annual periodical application of SOM managements and, as last resort, with the deliverables associated to the monitoring actions devoted to the evaluation of the real effectiveness of project strategies (e.g. Actions C.2, C.3, C.4)

5.1.4. Action B.3 *Set up of project sites* (please find herewith enclosed the reply to the technical note included in the communication sent by the Commission on 14/01/2014-Ares(2014)64258):

Proposal start date: March 2014	Proposal end date: July 2018 (to continue)
Actual start date: March 2014	Actual end date: July 2018 (to continue)

this action is related to the application of sustainable SOM managements at farm scale in four project sites located in Campania and Piemonte regions. In accordance with the timing indicated in the proposal, the set up at the project sites of the University of Napoli and Torino is starting (February/March 2014) with the formations of farm plots for the application of SOM management strategies, followed by the first compost application (March/April 2014) on the plots dedicated to demonstrative SOM management (doses 10 and 20 ton ha⁻¹). The soil amendment with biomimetic catalyst (5 kg ha⁻¹) will be achieved immediately after the tillage operations for the establishment of maize crop (end April-May 2014) in the two University farms of Napoli and Torino. For the project site of Terra Orti/Prima Luce, the

activities will start with the cultivation of Sorghum (May/June 2014) for the production of ¹³C labelled ligneous materials for composting processes; the first application of compost is expected in III semester 2014 on fruit orchard. For the second project site of Piemonte the compost will be applied during the II semester 2014 on horticultural crops.

All farming activities, crop cycle and annual application of project strategies at each project sites are expected to continue without any modification with respect to the time table indicated in the proposal. The effective OC inputs, the quality of compost and amount of biomimetic catalyst allocated at different project sites will be reported in the deliverables of the next Progress report (16/03/2015). The output of the Implementation action B.3 are related to the effectiveness of SOM managements. Hence, the deliverables associated to Action B.3, coincide with the deliverables related to the monitoring actions devoted to the evaluation of the project strategies (e.g. Actions C.1, C.2, C.3, C.4, C.5, C.6)

5.1.5. Action C.1 *Monitoring of composting processes and characterization of compost quality-Responsible UNIBAS:*

Proposal start date: March 2014	Proposal end date: July 2018 (to continue)
Actual start date: March 2014	Actual end date: July 2018 (to continue)

the monitoring activity has been already activated with the formation of specific working group under the supervision of the responsible of the Action

This action has been started timely with the activation of the *on farm* composting process at the project site of the University of Napoli (University experimental farm - Castel Volturno). The on farm composting plan was set off in February 2013 with an annual average of four to five composting cycles, comprehensive of 25/30 days of *active (thermophilic) stage*, followed by 45/60 days of *curing phase* and stabilization processes, for an annual production that range from 800 to 1000 ton of mature compost. Please refer to annex **7.5g** for an exemplificative illustration of composting activity (*University farm of Castel Volturno- on farm composting system*).

At project site of Terra Orti/Prima Luce the composting cycle is expected to start operatively on half May 2014; to this purpose the Responsible of Action B.1 (D. Esposito Terra Orti/Prima Luce) and of Action C.1 (Dr. G Celano UNIBAS) have already established a technical agreement with the Terra Orti organization with respect to the removal and recovery of pruning biomasses from the agricultural farms associated to Terra Orti. The following orchard systems have been individuated for the attainment of ligneous biomasses for compost production: kiwi, peach, plum, apricot-tree. The first collection of pruning biomasses will start in February/March 2014 on kiwi orchard systems. The on farm composting system of Terra Orti/Prima Luce is expected to perform two composting cycle with an initial annual production of mature compost ranging around to 2000/3000 tons, that will increase to a steady production of 5000/6000 tons yr⁻¹.

Analyses and characterization of OM composition are in progress on the initial biomasses and compost material from the *on farm* composting plan of University of Napoli, and for the compost from bio-digestate used in the project sites located in Piemonte. Please refer to the related protocol for C.1 action in the deliverables included in annex **7.2**. The program of monitoring activity is expected to continue without changes with respect to the timing of the proposal. The first deliverable for the results of C1 action will be included in the next Progress report

5.1.6. Action C.2 *Monitoring of soil organic carbon stabilization and the improvement of physical and biological soil fertility-Responsible CERMANU:*

Proposal start date: March 2014	Proposal end date: July 2018 (to continue)
Actual start date: March 2014	Actual end date: July 2018 (to continue)

the monitoring activity has been already activated with the formation of specific working group under the supervision of the responsible of the Action..

an initial sampling of soil at the four project sites will performed before the application of SOM managements strategies to check the starting condition (March 2014). The monitoring activity will then be applied annually at the end of peculiar crop cycle/growing season. Please refer to the related protocol for C.2 activity in the deliverable included in annex 7.2. The variation of soil aggregate stability will be monitored with an higher frequency (at least four sampling time for each crop cycle) in order to develop a more strict correlation with irrigation inputs. The results of monitoring activities for initial condition and after the first year of SOM managements, will be included in the deliverables of the next Progress report.

5.1.7. Action C.3 Monitoring of the agronomical, phytopathological and practical sustainability of proposed strategies- Responsible CRA-ORT:

Proposal start date: March 2014	Proposal end date: July 2018 (to continue)
Actual start date: March 2014	Actual end date: July 2018 (to continue)

the monitoring activity has been already activated with the formation of specific working group under the supervision of the responsible of the Action. The specific activities will start with the time course of specific crop cycle with the analysis of plants and final products during each annual growing season. The analyses related to compost materials are in progress for the on-farm compost of the project sites of University of Napoli and for the compost from bio-digestate used in the farm sites of Piemonte. Please refer to the related protocol for C.3 activity in the deliverable included in annex 7.2. The results of monitoring activity for after the first year of SOM managements, will be included in the deliverables of the next Progress report.

5.1.8. Action C.4 Monitoring of greenhouse gases emissions-Responsible CERMANU:

Proposal start date: May 2014	Proposal end date: July 2018 (to continue)
Actual start date: March 2014	Actual end date: July 2018 (to continue)

the monitoring activity has been already activated with the formation of specific working group under the supervision of the responsible of the Action.

This action will monitor the effect of applied strategies for SOC stabilization on the release of GHG (mainly CO₂ and N₂O) from crop fields. The analyses will begin with the set-up of project sites and will be performed annually on ongoing basis on selected plots either in presence or in absence of crop cover. Both fixed and mobile gas sampling systems were envisaged for, respectively the project sites located in Campania and for the project sites located in Piemonte. Specific instrumentation have been already installed and are currently being tested. Please refer to the attached file “GHG measurements” in the annex 7.5h for an exemplificative illustration of GHG sampling chambers used in the project. The results of monitoring activities after the first year of SOM managements, will be included in the deliverables of the next Progress report.

5.1.9. Action C.5 Monitoring the environmental and economical sustainability of proposed strategies-Responsible AGROSELVIT:

Proposal start date: May 2014	Proposal end date: July 2018
Actual start date: March 2014	Actual end date: July 2018

the monitoring activity has been already activated with the formation of specific working group under the supervision of the responsible of the Action.

This activity will involve the assessment of environmental and economical sustainability of proposed strategies in the agricultural sector. The acquisition of the data is already started for the *on farm* composting systems of University of Napoli and is in progress with respect to the realization of on farm composting prototype at the project site of Terra Orti/Prima Luce. After the set up of project sites the monitoring activity will be performed for the different cropping systems and SOM managements. An innovative approach is being created, by the beneficiary AGROSELVIT, responsible of the action, in collaboration with the Beneficiaries UNIBAS and TerraOrti/Prima Luce, concerning the connection of the GIS systems with a software for farm management program. This system will be used for the feedback correlation of economical and environmental inputs (fertilizers, tillage operations, water consumption, SOC amount, compost, crop yields etc.) with land use, SOM management, cropping system, in specific soil units.

5.1.10. Action C.6 *Monitoring the acquired awareness about available techniques for SOC stabilization and bioresources valorisation-Responsible AGROSELVIT:*

Proposal start date: February 2015	Proposal end date: July 2018
Actual start date: February 2015	Actual end date: July 2018

this action will be activated in coordination with the main dissemination events (action D1, D3, D4, D5) after the acquisition of the first feedbacks from the applied project strategies (I semester 2015)

5.1.11. Action D.1 *Project website-Responsible REGCAM:*

Proposal start date: December 2013	Proposal end date: July 2018 (to continue)
Actual start date: December 2013	Actual end date: July 2018 (to continue)

the project website has been published since the 2/12/2013 with a steady updating on project activities. It will be active at least for the next ten years

5.1.12. Action D.2 *Life+ notice boards, project leaflets, informative technical reports-Responsible REGCAMP:*

Proposal start date: October 2014	Proposal end date: July 2018 (to continue)
Actual start date: March 2014	Actual end date: July 2018 (to continue)

the first notice boards to be located at the site of each Beneficiary have been prepared (Annex 7.2). Project leaflets with informative updating about project objectives, strategies and results, will be distributed during the dissemination activities (D.3 workshops and D.5 national conferences) organized in the regions involved. An example of the first Leaflet containing a general presentation of project backgrounds and objectives to be used in the first phases, for the initial workshops, will be included in the deliverables of the next Progress report. All the activities are expected in line with the deadlines indicated in the proposal

5.1.13. Action D.3 *Press Conferences and workshop/demonstration days-Responsible REGBAS/ALSIA:*

Proposal start date: March 2014	Proposal end date: June 2017
Actual start date: March 2014	Actual end date: June 2017

the initial press Conference was held at the “Congress centre of University of Napoli Federico II” in via Partenope Napoli, the 24th February 2014, with the participation of the representatives of each associated beneficiary. The list of invited stakeholders is enclosed with the annex 7.5i. The workshops for the dissemination of LIFE CarbOnFarm project to farmers, technicians, agronomists, civil servants, agricultural and environmental associations,

will be organized in both Campania and Piemonte regions involving the different project sites, starting after the acquisition of first results of proposed SOM management strategies (1st workshop = II semester 2015) with annual frequency

5.1.14. Action D.4 Info-days Responsible UNIBAS):

Proposal start date: June 2014	Proposal end date: June 2017
Actual start date: June 2014	Actual end date: June 2017

from second to fifth year of project, specific visit of farm sites will be organized by the Beneficiary UNIBAS, CERMANU and AGROSELVIT with the students to promote the objectives, strategies and the results of the CarboOnFarm project. The visits will be carried out indicatively during the stages of compost production and specific crop cycles

5.1.15. Action D.5 Mid-term and final conference-Responsible REGBAS/ALSIA

Proposal start date: March 2016	Proposal end date: June 2018
Actual start date: March 2016	Actual end date: June 2018

Two National Conferences are scheduled during the project: the mid-term conferences will be organized at project site of the commercial beneficiary Prima Luce, while the final conferences will be organized at the University of Napoli. The objective is the communication at national level of the objectives, strategies, results of the CarbOnFarm project. The conferences are based on the visit of the project sites, and will focus on the main topics concerned by the proposal and will include the presentation of the proposed practices, the results and the progress achieved with the project, with a discussion on the main aspects faced by the proposed strategies. The Conferences, besides the local target audience (farmers, farmer’s association, technicians and students) will be addressed to Universities, researchers, and to National and Regional institutional stakeholders

5.1.16. Action D.6 Layman’s report –Responsible REGCAMP

5.1.17. Action D.7 After Life Communication plan Responsible CERMANU

The D.5, D.6, and D.7 activities are expected in line with timing and objectives indicated in the proposal

5.1.18. Action D.8

Proposal start date: July 2015	Proposal end date: July 2018
Actual start date: March 2014	Actual end date: July 2018

The Networking activity has been activated with the communication of the start of LIFE CarbOnFarm project and the invitation to the initial press conferences, sent to selected LIFE projects focused on land protection. An elaboration of common platform and groundwork for the effective exchange of information and experiences, will be proposed after the set-up of project sites. An invitation to attend and participate to the National Conferences for the responsible of LIFE projects involved in the networking activity, has been planned in the proposal. Please refer to Annex 7.51 for the contacts activated with selected LIFE projects

Presently the following projects have been identified for a networking activity:

1) oLIVE-CLIMA - LIFE11 ENV/GR/000942:

motivation- the focus of this project, based on “**increase carbon sequestration by soils** and to **reduce GHG emissions in agricultural lands** of olive producing areas”, is strictly akin to the objectives of LIFE CarbOnFarm project. A correlation may be envisaged for the following points marked as strategic topics:

-to reverse the trends of soil organic matter loss, soil erosion and desertification by implementing measures that increase the rate of organic matter build-up;

-to take **measures to reduce GHG emissions and other environmental impacts during crop production, including reducing dependence on inorganic fertilisers;**
 -to provide farmers with methodologies that will enhance biodiversity, **reduce CO2 emissions from soil, and are suitable for organic agriculture;**
 -to **demonstrate to farmers that environmentally benign agriculture can be more efficient, can lead to product differentiation and – in the case of olive-oil production – can result in self-sustaining crops;**
 -to **develop a set of easily measurable indicators that can be used to link farming practices to quantifiable carbon storage in the soil;**

2) LIFE HelpSoil LIFE12 ENV/IT/000578

motivation- the main goals of this project are defined as **“Implementing practices to improve the ecological functions of soil - organic carbon sequestration, soil fertility and biodiversity, protection against erosion -, with the goal of increasing agricultural sustainability and competitiveness; Integrating conservation practices and innovative techniques in order to increase the efficiency of irrigation; improve the efficiency of fertilisers, in particular livestock manure; and limit the use of pesticides.**

These objectives are strictly related to the SOM management strategies of LIFE CarbOnFarm Project.

3) Life RESAFE LIFE12 ENV/IT/000356

motivation-the backgrounds and goals of LIFE CarbOnFarm project may be effectively interfaced with the target objectives reported in the project description (e.g. *replacing chemicals and mineral fertilisers through a technological route based on urban organic waste, bio-char and farm organic residues; consistent improvement in soil health and fertility; increased availability of nitrogen and phosphorus for plants; increased “suppressive soil potential” against soil pathogens, demonstration of a composting process that strengthens humification; well-humified organic matter that has a positive impact on soil; higher soil water retention*)

In this respect a representative of LIFE12 ENV/IT/000356 - LIFE RESAFE, Prof. Giuseppe Bonifazi, attended to the press conference of the LIFE CarbOnFarm held on 24 February 2014. The Project Manager of LIFE CarbOnFarm has been invited by the representatives of LIFE GreenWoolF to attend the presentation event and to initiate a networking activity (please refer to attached files in **Annex 7.5I**)

5.2. Availability of appropriate licences and authorisations (if relevant; as indicated in the proposal) No indication.

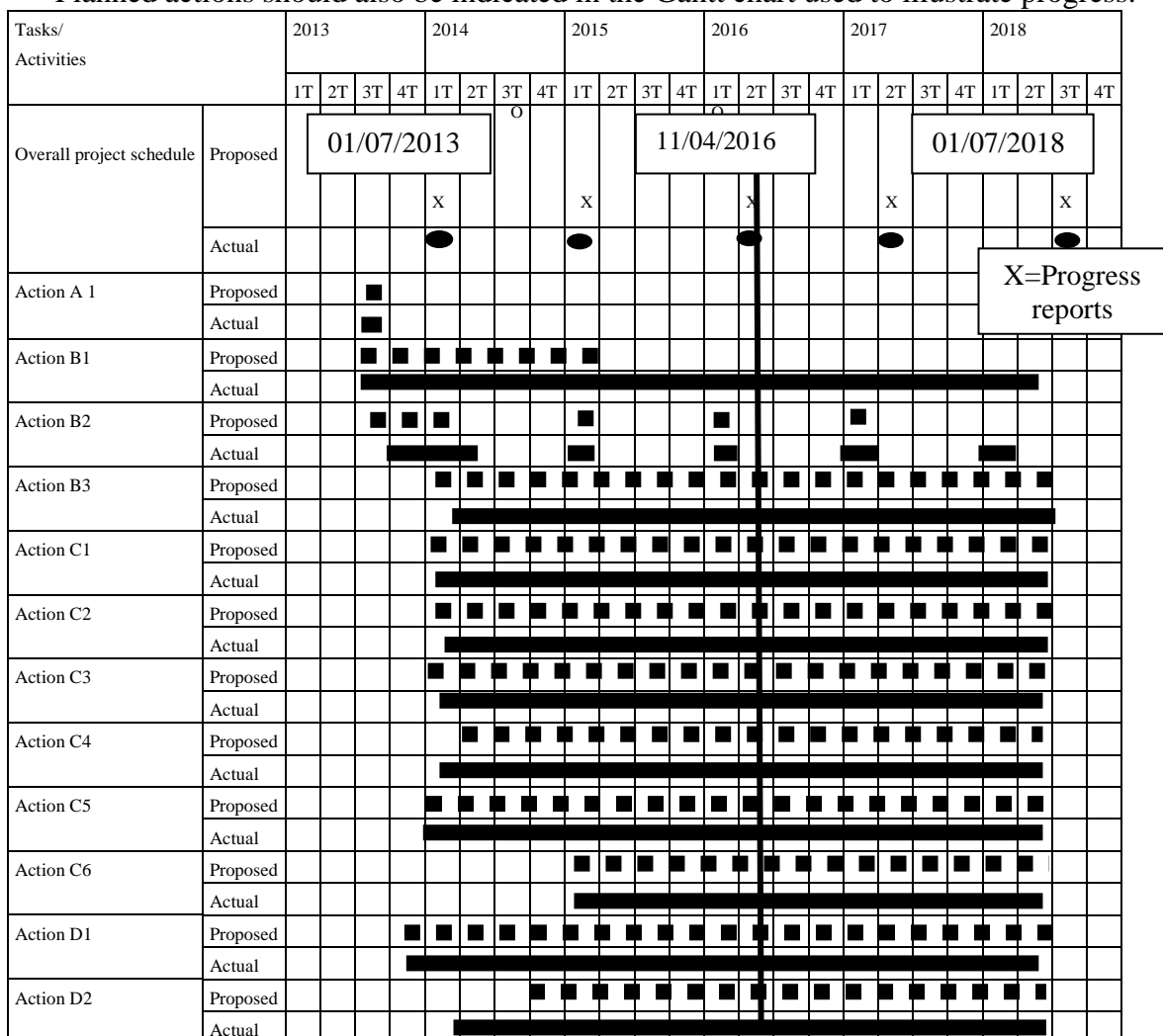
5.3. Envisaged progress until next report.

• Implementation actions:

B.1 completion of the realization of the prototype for *on farm* composting at project site of Terra Orti/Prima Luce, effective transfer of composting technologies and production of *on farm* compost. *Milestones: set-up of composting procedure and initial production of on farm compost 31/01/2014-15/05/2014. Deliverables: Economical evaluation of the composting procedure, Draft of standard composting procedure, Technical report on B1 Action;* **B.2** steady acquisition of biomimetic catalyst for innovative SOM management. *Deliverables: timing, amounts and characterization of biomimetic catalyst used for SOM managements;* **B.3** field application at farm scale of project strategies for SOM management based on compost application at the four Project sites of Campania and Piemonte regions and soil addition with biomimetic catalyst at the University farms of Napoli and Torino. Performing of annual farming activities on selected crops. *Milestones: set up of project sites of University farms of Napoli and Torino 31/03/2014, set-up of project sites of commercial farms 30/05/2014.*

- Monitoring actions C1, C2, C3, C4, C5: performing of monitoring activities with steady data acquisition on: composting processes and composts quality-C1, SOC stabilization, physical and biological soil fertility-C2, productive sustainability of proposed strategies-C3, soil GHG emissions-C4, LCA and energy evaluation of project activities (composting processes, SOM managements, cropping systems)-C5 *Milestones: data acquisition on C1, C2, C3, C4 action for first year 30/11/2014. Deliverables: report on C2, C3, C4 actions*
- Communication and dissemination actions: D1, D2, D3, D4, D8
performing of steady updating of project website with respect to the project activities, the applied strategies, progress, results and project events-D1; achievement and placement of project notice boards at each project site, preparation of the first version of leaflet/brochure for workshop events with the description of project objectives and strategies-D2; achievement of info days for academic and students at farm sites-D4, performing of LIFE networking activity with selected LIFE projects (please refer to previous point 5.1.18) and/or with additional LIFE projects-D8. *Milestones. Info days for academic and students 30/06/2014*
- Project management and monitoring of the project progress E1: performing of coordination and management of project activities, improve the interaction of beneficiaries and specific working groups, ensure the fulfilment of project objectives, milestones and deadlines, control the respect of technical and financial obligations. *Milestones: Project Committee meeting 16/06/2014, 30/01/2015. Progress report: 16/03/2015*

- Planned actions should also be indicated in the Gantt chart used to illustrate progress:



Action D3	Proposed						■						■				■			
	Actual						■				■		■				■			
Action D4	Proposed						■						■					■		
	Actual						■						■					■		
Action D5	Proposed																		■	
	Actual																		■	
Action D6	Proposed																			■
	Actual																			■
Action D7	Proposed																		■	
	Actual																		■	
Action D8	Proposed							■	■	■	■	■	■	■	■	■	■	■	■	■
	Actual							■	■	■	■	■	■	■	■	■	■	■	■	■
Action E1	Proposed		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Actual		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

6. Financial part

With reference to the financial note included in the communication sent by the Commission on 14/01/2014 (Ares(2014)64258), we have acknowledged the reminder and the indications of the Commission concerning the following points

- regular up-dating of accounting system and statements of expenditure,
- reporting on the time sheet the actual productive hours and the signature of Project manager
- provide invoices, quotations, supporting documents of expenditure, durable goods with clear reference to LIFE project number and acronym

6.1. Putting in place of the accounting system

Accounting systems based on the LIFEplus financial reporting documents were activated after the first Project Committee meeting

6.2. Continued availability of co financing

No changes are expected on the co-financing amounts included in the proposal

6.3. Costs incurred (summary by cost category and relevant comments).

Fill in the following table concerning the incurred project costs:

Budget breakdown categories	Total cost in €	Costs incurred from the start date to 15.02.2014 in €	% of total costs
1. Personnel	1,513,725	65285	4.3
2. Travel and subsistence	43,040	884	2
3. External assistance	643,110	65003	10.1
4. Durable goods			
Infrastructure			
Equipment	30,000	8415	28
Prototype	266,200	73000	27.4
5. Land purchase / long-term lease			
6. Consumables	349,540	47489	13.5
7. Other Costs	26,700		
8. Overheads	178,950	1845	1.0
TOTAL	3,051,265	261921	8.6

• with respect to the warning note on financial aspects concerning the low rate of expenditures, included in the communication sent by the Commission on 14/01/2014 (Ares(2014)64258), please consider that a consistent part of project activities are focused on the application of SOM managements in Implementation Action B.3 and on the consequent monitoring activities and communication of project results. As indicated in the proposal, and outlined in the reply to specific remarks made by the Commission in the revising process, a consistent part of the budgeted costs are related to Personnel, which global voice represent the large part of project budget. The Personnel undertaking, in terms of, either, staff members involved in the co-financing (e.g. technicians, researchers) or temporary high qualified personnel specifically hired for the project, is involved in project activities that will start with or after, the set-up of project sites (February/March 2014), and the corresponding financial amounts are expected to raise from the II trimester 2014; accordingly, the same trend is expected for the main voices related to other costs (consumables, travel, equipment, overheads) associated with field activities on Action B3, progress of monitoring actions and achievement of communication and dissemination of project results.

The threshold for the request of the second 40% of EC contribution (150% of initial contribution) i.e. the 30 % value of total costs, is expected to be reached in January/February 2016

Please fill in also the following additional table (recommended). When compiling the information please refer to Form B of the proposal:

Action number and name	Foreseen costs	Spent so far	Remaining	Projected final cost
Action A1 Technical planning"	63862	45705	18157	63862
Action B1 Set up of a composting plant.....	401840	68000	333840	401840
Action " B.2 Set up production of biomimetic catalyst	97340	37507	59833	97340
Action B3 Set up of project sites	342153		342153	342153
Action C1 Monitoring of composting processes	172045	31037	141008	172045
Action C2 Monitoring of SOC stabilization.....	231698	25000	206698	231698
Action C3 Monitoring of the agronomical sustainability...	292405	8415	283990	292405
Action C4 Monitoring of greenhouse gases emissions	278753	20000	258753	278753
Action C5 Monitoring the environmental and economical...	130261	/	130261	130261
Action C6 Monitoring the acquired awareness about available techniques for SOC.....	17800	/	17800	17800
Action D1 Project website	33030	1819	31211	33030

Action D2 Life+ notice boards, project leaflets,.....	8720	2150	6570	8720
Action D3 Press Conferences and workshop/demonstration.....	236256	6737	229519	236256
Action D4 Info-days (to students)	33547	/	33547	33547
Action D5 Mid-term and final conference	118890	/	118890	118890
Action D6 Layman's report	36210	/	36210	36210
Action D7 After Life Communication plan	/	/	/	/
Action D8 Networking activities with other LIFE+ projects	19780	730	19050	19780
Action E1 Technical, administrative and financial management.....	357725	12976	342904	357725
TOTAL	2872315	260076	2612239	2872315

7. Annexes

7.1. Partnership agreements and LIFE CarbOnFarm Partnership agreement checklist

7.2. Deliverables

7.3. Maps, drawings, technical designs, technical memos etc. as appropriate.
Management chart

7.4. Output indicators. Definition.

7.5

7.5a Stamp for LIFE CarbOnFarm (Action A.1/E.1)

7.5b Prototype on farm composting plan-work progress (Action B.1)

7.5c Final Report on Feasibility studies from SienaBiotech (Action B.2)

7.5d Quotations for acquisition of biomimetic catalyst (Action B.2)

7.5e Recent development in the synthesis of biomimetic catalyst (Action B.2)

7.5f List of publications from CERMANU on biomimetic catalysts (Action B.2)

7.5g University farm of Castel Volturno- on farm composting system (Actions B.3-C.1)

7.5h Equipment for GHG measurements (Action C.4)

7.5i Initial Press Conference (Action D.3)

7.5l LIFE Networking activity: e-mail messages with project manager of selected LIFE projects (action D.8)

