LIFE Project Number

# LIFE15 ENV/GR/000257

# Progress Report[1]

## Covering the project activities from 01/09/2016[2] to 31/07/2017

Reporting Date[3]

## 31/07/2017

LIFE PROJECT NAME or Acronym

# LIFE-F4F (Food for Feed)

Data Project

| | |
|---|---|
| **Project location:** | HERAKLION, GREECE |
| **Project start date:** | 01/09/2016 |
| **Project end date:** | 28/02/2020 |
| **Total budget:** | € 2,580,619 |
| **EU contribution:** | € 1,459,227 |
| **(%) of eligible costs:** | 60% |

Data Beneficiary

| | |
|---|---|
| **Name Beneficiary:** | Eniaios Syndesmos Diaxeirishs Aporrimmaton Kritis<br>(United Association of Solid Waste Management in Crete ) (ESDAK) |
| **Contact person:** | Mrs Panteli Paraskevi |
| **Postal address:** | Archiepiskopou Makariou 22, 71202, Heraklion, Greece |
| **Telephone:** | +30 2810 361615 |
| **E-mail:** | esdak@otenet.gr |
| **Project Website:** | https://life-f4f.gr/ |

[1] Progress Report without any payment request (for Progress Reports with payment request, use the Mid-term Report template)
[2] Project start date in the case of the first Progress Report, otherwise date since the last reporting period
[3] Include the reporting date as foreseen in part C2 of Annex II of the Grant Agreement

# 1. Table of contents



# 2. List of key-words and abbreviations

ESDAK: Eniaios Syndesmos Diaheirishs Aporrimmaton Kritis (United Association of Solid Waste Management in Crete)
AUA: Agricultural University of Athens
FUB: Freie Universität Berlin
HUA: Harokopio University of Athens
TEIC: Technological Educational Institute of Crete
EC: European Commission
PM: Project Manager
PMB: Project Management Board
PMT: Project Management Team
AB: Advisory Board
TMa: Task Managers
TMe: Team Members

# 3. Executive summary

## 3.1. General progress

The project LIFE15 ENV/GR/257 is a demonstration project aiming to evaluate, through a pilot scale realisation, an innovative, simple technology and low emissions process that allows the safe transformation of source separated food wastes, mainly from hotels (and generally from the hospitality industry and restaurants), into animal feed, utilising an altered solar drying process.

This is the first technical report of the LIFE-F4F project covering the period from 01/09/2016 (Start Date) until 31/07/2017 (Month 11). The financial part of this report covers all documented expenses incurred during the same period. During these first eleven months of the project, all preparatory actions have been taken place, in order to proceed with the core of the project, the construction and the operation of the pilot plant, the forthcoming months. The partners have closely worked together, following the instructions of the coordinating beneficiary, with the aim to prepare all projects' deliverables.

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

The project's objectives can be summarized as follows:
1. Determining in pilot scale, the quality of the animal feed produced in relation to both the wastes source separation system existing and operating in hotels (and secondarily in restaurants), and the suggested innovative drying/pasteurizing methodology, based on the solar drying technology.
2. Determining the various technical aspects of the suggested process, the main components of which are: a) non-invasive, refrigerated, separate collection, b) hand sorting / removal of non-food wastes, c) grinding, d) solar drying / pasteurizing of the mixed food, and e) mixing with other animal feed (e.g. corn) for achieving high quality standards.
3. Evaluating the economical, marketing and environmental parameters related to the process and product (from the source to the shelf).
4. Developing appropriate scaling up, dissemination, replicability and transferability processes, towards full scale unit(s).
5. Evaluating the policy parameters related to the process, such is the potential role in waste minimization and reuse of non-recyclable wastes (part of an integrated solid wastes management scheme), as well as the Roadmap to a Resources – Efficient EU.
6. Evaluating the inclusion of the F4F product as an ingredient in pet, pigs & poultry food with regard to feed hygiene, feed acceptance, nutrient digestibility, animal welfare and public acceptance
7. Determining its optimum inclusion level for nutritional and economic reasons

The project objectives as well as the work plan are still viable, while partners follow all the individual activities. At the moment, according to the timetable, the time schedule of the project is up to 12%, as delays of about four months have been occurred in the project implementation. The delays occurred during the reference period have as follow:

1. The first delay in the project was the change of tender legislation in Greece (N. 4412, 08-08-16) and the development of relevant tender models by the respective ministry. This had as result a delay in ESDAK tendering procedures and thereafter, in the construction and operation of the pilot unit.
2. Tendering procedure concerning ESDAK's external assistance support. Despite the legislation change, ESDAK, on November 2016 was the first public authority in Greece used this law for the publication of the tender concerning external assistance support in various Actions activities, such as licensing procedure. The fact that this new legislation hasn't until then been used by any other public authority cause a delay in this tender. It

should be mentioned that at least 6-9 months were required for the relevant ministry guidelines to be published.

3. A four month delay occurred in licensing approval. All licenses had to be approved until February, 2017 and this procedure finally completed at the begging of July, 2017. Three licenses were required for the construction and operation of the F4F pilot unit. The environmental, the building and the operational licenses approval (see more details in Action B2. and Tables 10, 11, 12). The main delay occurred in the operational license approval. This delay has mainly to do with bureaucracy processing documents and with the delay occurred in the tender for the external assistance support, responsible for supporting ESDAK in this action.
4. Tendering procedure for the construction of the pilot unit. The change in tender legislation also affects the public tender concerning the pilot unit construction. The delay for the completion of this tender has to do with the licensing of the selected area, as it was not possible to be published if the area for the installation of the pilot unit was not legally approved by all relevant public services.
5. Tendering procedure for the service concerning collection of the MSW from hotels and the operation of the pilot unit. The change in the tender legislation also affects the public tender concerning the tender for the food waste collection system. However, this public tender concluded on July, 2017 and in case that no objection occurs it is anticipated that during September the contractor will sign the relevant contract.

Beyond all the delays occurred so far in the project it is anticipated that will be covered by partners in order this timetable, concerning the full scale operation and the optimum operational period of the project's pilot unit, to be in line. All partners will make every effort to cover these delays by using the months between November, 2017 and March, 2018 (on November, 2017 the pilot unit is anticipated to be operated). This is possible as three from the four selected hotels are city hotels, which mean that raw materials will be available during this period. They will try to reclaim this period in order to have results and data from the initial operational period, and the first full operational period and the optimum operational period to start up according timetable and not to be affected. In this case, the overall project's objective will stay behind schedule and will not be affected. More details concerning this delay are presented in paragraph 3.3. and 5.1.2. (Action B.2.) of the present report. Until now, no technical changes have encountered and it's not likely seems to face difficulties regarding the present situation and progress. For the reporting period the project is within budget and there is an effective coordination and communication among project partners.

## 3.3. Identified deviations, problems and corrective actions taken in the period

According to the submitted proposal of the project, in Action B.2., a four (4) month delay has been occurred in the licenses approval concerning the development of the pilot unit. As it was foreseen, all relevant licenses had to be approved until the end of February, 2017 and finally this procedure concluded at the beginning of July, 2017, due to bureaucracy. This has as a result a delay in the construction of the pilot unit for about five (5) months. As it was foreseen in the project's proposal, the pilot unit had to be delivered at the end of June and now it is anticipated on November, 2017.

The tendering procedure by ESDAK concerning the collection of the MSW for the initial and the operational period of the F4F project is almost completed and it is anticipated, if there is no objection for the tender, that at the end of September the contractor will start up collection from the selected hotels (see Action B1, Table 9). For the period until the completion of the infrastructures of the pilot unit, the contractor will transfer the collected food wastes to a selected by ESDAK area, where qualitatively and quantitative analysis of hotels' source separating food wastes scheme will take place. In addition, three from the four selected hotels are city hotels, which mean that are in full operation all the year and not only in touristic season and raw materials can be collected during autumn and winter.

The solar drying turners for the pilot unit operation are anticipated to be delivered on November, 2017. This is also a five (5) month delay which has to do with the construction and operation of the pilot unit. It is also anticipated that during November, the pilot unit will be operated and the food wastes collection system will also be operated.

In this case, where the pilot unit will be delivered during November, 2017 (autumn and not summer as it was foreseen) the production period will be supported by the use of solar drying thermals, in order to overcome weather conditions. This is also an opportunity for the project to check the production process in different weather conditions, as the second (full scale operation) and the third (optimum full scale operation) operational periods will carry out during summer, as scheduled in the submitted project's proposal (due to Grant Agreement).

All partners will reclaim the months between November, 2017 and March, 2018, where the second operational period is anticipated to start up, on time.

# 4. Administrative part

The role of each partner had been defined precisely in the project's submitted proposal. No technical changes or difficulties had encountered up to now, and it's not likely seems to face difficulties regarding the present situation and progress. The project seems to follow the time schedule, with slight deviations; however, all partners will take all measures, in order this change not to affect the project progress and its main objectives.

## 4.1. Description of project's management structure

For the overall management of the project and the effective reporting of the project's findings and progress and in order to achieve the best possible management and the goals of the project, a specific set of decision making bodies has been defined and structured by implicating all associated beneficiaries:

- **Project Manager (PM)**: Concerning the project management structure, a change has been realized to the project manager. Dr Olga Christou, Senior Engineer of ESDAK was set as the project manager; however, after her retirement at 06/05/2016, Mrs Panteli Paraskevi has been set as the new project manager of ESDAK. The PM is responsible for:
  1. Coordinating the technical activities of the project
  2. Discussing the project issues with the collaborating beneficiaries
  3. Discussing the project issues with the Commission
  4. Coordinating the Project Management Board and the Advisory Board
  5. The identification of potential problems arising in the project to be default with by the Project Management Board
  6. Managing the overall legal, contractual, ethical and administrative issues related to the project
- **Project Management Board (PMB)**: The PMB is the formal decision-making body of the F4F project, which consists of one representative (five members in total) of each partner authorized to deliberate, negotiate and decide on all matters in the Project Management Board's jurisdiction. The PMB consists by Mrs Panteli P. (from ESDAK), Mr Zervas G. (from AUA), Mr Zentek J. (from FUB), Mrs Lasaridi K. (from HUA) and Mr Manios T. (from TEIC). See also Table 1, below.

  The Coordinator of the PMB acts as the intermediary between the project partners and the European Commission (EU). The Coordinator, Dr Christou, has also been replaced by Mrs Panteli Paraskevi at 06/05/2016. The Coordinator and the PMB will be assisted by the Project Management Team. The PMB is responsible for:
  1. Ensuring that the deliverables are completed on time
  2. The organization of meetings, workshops and dissemination activities
  3. The periodical compilation of reports on activity progress
  4. The production of inception, mid-term and final reports to the Commission
  5. Supporting the preparation of the financial statements

6. The evaluation of the End-of-Action evaluation reports, elaborated after the conclusion of each action.

- **Project Management Team (PMT)**: The PMT has been proposed by the Coordinator of the PMB and formally approved by the PMB. The PMT consists of the project manager, Mrs Panteli P. and the Deputy Mayor of Wastes and gardens management, Mr Mamoulakis Ch. who will be responsible for the day-to-day management of the project (Please, see also Table 2, below).
- **Advisory Board (AB)**: The Advisory Board has been has been set up to provide input into and feedback on specific project activities. The AB has been integrated by stakeholders such as local government, anaerobic digestion units' operators, waste management industry, public and private communities, such as from Geotechnical Chamber of Greece, Municipality of Heraklion, Region of Crete and University of Crete (Please, see also Table 3, below).

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

The project management structure consists by the following levels:

- The Project Manager (PM)
- The Project Management Board (PMB)
- The Project Management Team (PMT)
- The Advisory Board (AB)
- The Task Managers (TMa) & the Team Members (TMe) for each partner

The management structure of the F4F project is presented in the following tables:

**Table 1.** Project Management Board (PMB)

| A/A | Partner | Name of staff member | Position in the organigramme |
|---|---|---|---|
| 1 | ESDAK | Panteli Paraskevi with her substitute Borboudaki Kalliopi | Project Manager & Coordinator for the PMB |
| 2 | AUA | Zervas Georgios with his substitute Dr Tsiplakou Eleni | Main representative & responsible for partner AUA |
| 3 | FUB | Jürgen Zentek with his substitute Dr Nadine Paßlack | Main representative & responsible for partner FUB |
| 4 | HUA | Lasaridi Katia with her substitute Kostas Abeliotis | Main representative & responsible for partner HUA |
| 5 | TEIC | Manios Thrassyvoulos | Main representative & responsible for partner TEIC |

**Table 2.** Project Management Team (PMT)

| A/A | Partner | Name of staff member | Position in the organigramme |
|---|---|---|---|
| 1 | ESDAK | Panteli Paraskevi | Project Manager & Coordinator for the PMB & PMT |
| 2 | ESDAK | Mamoulakis Charalambos | President of ESDAK & Responsible for the day-to-day management of the project |

**Table 3.** Advisory Board (AB)

| A/A | Organization | Name of representative | Occupation |
|---|---|---|---|
| 1 | Geotechnical Chamber of Greece | Stefanakis Alexandros, president in the Department of Heraklion | Veterinary |
| 2 | Municipality of Heraklion | Iniotakis Petros, Deputy Mayor of Planning - Organization - eGovernment - Transparency - Environment - Rural Development & Coordination of Municipal & Local Communities | Engineer |
| | Region of Crete | Kalogeris Nikolaos, Vice-governor for Environment, Spatial Planning and Energy: | Engineer |
| | Region of Crete | Chnarnis Emmanouil, Vice-governor in Primary sector | Geotechnical |
| | University of Crete | Kalogerakis Nikolaos, Professor, Technical Univercity of Crete | Engineer |

**Table 4.** ESDAK task managers & team members please indicate who is the task manager and who is a member of the team working for each action
In the following tables, please add a column indicating what each person does in the particular task.

| Action | Name of staff member | Occupational skill | Position in ESDAK | Position in Action |
|---|---|---|---|---|
| B1 | 1. Giakoumaki Ioanna<br>2. Manassakis Georgios<br>3. Stylianidis Nikolaos<br>4. Markomanolaki Anna<br>5. Panteli Paraskevi | 1. Senior Engineer/ Mechanical engineer<br>2. Administrative<br>3. Civil engineer<br>4. Administrative<br>5. Senior Engineer | 1. Permanent staff (Task manager)<br>2. Permanent staff (member)<br>3. Permanent staff (member)<br>4. Permanent staff (member)<br>5. Permanent staff (member) | 1. Participation in the meetings with hotel owners/ managers, preparation and sign cooperation agreements with hotels. Organization - supervising of relevant activities.<br>2. Contact hotel managers and arrange the meetings<br>3. Director of Technical Services (check and sign every technical part)<br>4. Secretarial support (executive committee decisions, hotel questionnaires, timesheets)<br>5. Participation in the meetings with hotel owners/ managers |
| B2 | 1. Georgiou Maria<br>2. Lasithiotakis Michalis<br>3. Panteli Paraskevi<br>4. Giakoumaki Ioanna<br>5. Varouchas Georgios<br>6. Stylianidis Nikolaos | 1. Senior Engineer/ Chemical engineer<br>2. Electrician mechanical engineer<br>3. Senior Engineer<br>4. Senior Engineer/ Mechanical engineer<br>5. Administrative<br>6. Civil engineer | 1. Permanent staff (Task manager)<br>2. Permanent staff (member)<br>3. Permanent staff (member)<br>4. Permanent staff (member)<br>5. Permanent staff (member)<br>6. Permanent staff (member) | 1. Tender's preparation and development, building license and land uses, operation and environmental license. Organization - supervising of relevant activities.<br>2. Electrical part for tender preparation<br>3. New tendering legislation (L.4412/2016)<br>4. Mechanical part for tender preparation. Tender's preparation, development and contractor selection process for supporting ESDAK in actions B2 & B3 mainly; monitoring of the relevant contract<br>5. Responsible for financials<br>6. Director of Technical Services (check and sign every technical part) and building license |
| B3 | 1. Georgiou Maria<br>2. Lasithiotakis Michalis<br>3. Stylianidis Nikolaos<br>4. Varouchas Georgios<br>5. Borboudaki Kalliopi<br>6. Manassakis Georgios<br>7. Giakoumaki Ioanna | 1. Senior Engineer/ Chemical engineer<br>2. Electrician mechanical engineer<br>3. Civil engineer<br>4. Administrative<br>5. Senior Engineer/Chemical engineer<br>6. Administrative<br>7. Senior Engineer/ Mechanical engineer | 1. Permanent staff (Task manager)<br>2. Permanent staff (member)<br>3. Permanent staff (member)<br>4. Permanent staff (member)<br>5. Permanent staff (member)<br>6. Permanent staff (member)<br>7. Permanent staff (member) | 1. Tender's development & preparation. Organization - supervising of relevant activities.<br>2. Electrical part for tender preparation<br>3. Director of Technical Services (check and sign every technical part)<br>4. Responsible for financials<br>5. Way of food waste collection for tender preparation<br>6. Legal requirement for green procurements & Administrative support<br>7. Mechanical part for tender preparation |
| B4 | No personnel until now for this action | | | |
| B5 | No personnel until now for this action | | | |
| B6 | No personnel until now for this action | | | |
| B7 | No personnel until now for this action | | | |

| Action | Name of staff member | Occupational skill | Position in ESDAK | Position in Action |
|---|---|---|---|---|
| C1 | 1. Panteli Paraskevi<br>2. Borboudaki Kalliopi | 1. Senior Engineer<br>2. Senior Engineer/ Chemical engineer | 1. Permanent staff (Task manager)<br>2. Permanent staff (member) | 1. Responsible for the tender procedure and the monitoring of the contract for supporting ESDAK in actions C1, D1 & E1. Organization - supervising of relevant activities.<br>2. Tender's preparation, development and contractor selection process for supporting ESDAK in actions C1, D1 & E1 |
| D1 | 1. Panteli Paraskevi<br>2. Markomanolaki Anna<br>3. Stylianidis Nikolaos<br>4. Borboudaki Kalliopi<br>5. Giakoumaki Ioanna | 1. Senior Engineer<br>2. Administrative<br>3. Civil engineer<br>4. Senior Engineer/Chemical engineer<br>5. Senior Engineer/ Mechanical engineer | 1. Permanent staff (Task manager)<br>2. Permanent staff (member)<br>3. Permanent staff (member)<br>4. Permanent staff (member)<br>5. Permanent staff (member) | 1. Tender's development, sign agreement and the monitoring of the relevant contract. Organization - supervising of the dissemination activities.<br>2. Secretarial support (executive committee decisions provision of material to the contractor, programming and control of dissemination activities,)<br>3. Participation & presentation for the first open day<br>4. Participation (oral presentation) in Athens 2017 conference and presentation for the first open day<br>5. Participation (poster) in Athens 2017 conference and presentation for the first open day |
| E1 | 1. Panteli Paraskevi<br>2. Varouchas Georgios<br>3. Giakoumaki Ioanna<br>4. Georgiou Maria<br>5. Borboudaki Kalliopi<br>6. Manassakis Georgios<br>7. Stylianidis Nikolaos<br>8. Markomanolaki Anna | 1. Senior Engineer<br>2. Administrative<br>3. Senior Engineer/ Mechanical engineer<br>4. Senior Engineer/ Chemical engineer<br>5. Senior Engineer/ Chemical engineer<br>6. Administrative<br>7. Civil engineer<br>8. Administrative | 1. Permanent staff (Task manager)<br>2. Permanent staff (member)<br>3. Permanent staff (member)<br>4. Permanent staff (member)<br>5. Permanent staff (member)<br>6. Permanent staff (member)<br>7. Permanent staff (member)<br>8. Permanent staff (member) | 1. Grant Agreement signature & Partnership agreements preparation and signature, preparation and participation in the project meetings and monitoring meeting. Preparation of the 1st progress report<br>2. Participation in the meeting<br>3. Preparation and participation in the meetings<br>4. Preparation and participation in the meetings<br>5. Preparation and participation in the meetings<br>6. Participation in the meeting<br>7. Preparation and participation in the meetings<br>8. Secretarial support for the meetings |

**Table 5.** AUA task managers & team members

| Action | Name of staff member | Occupational skill | Position in AUA | Position in Action |
|---|---|---|---|---|
| B1 | No personnel until now for this action | | | |
| B2 | No personnel until now for this action | | | |
| B3 | 1. George Zervas<br>2. Eleni Tsiplakou<br>3. Maria Koukouli | 1. Animal Nutritionist<br>2. Animal Nutritionist<br>3. Financial Management | 1.Professor (Task manager)<br>2.Assist. Professor (member)<br>3.Financial Management (member) | 1.AUA team Coordinator<br>2. Literature review of the relevant legislation.<br>3. Responsible for the financials |
| B4 | No working hours spent on this action from the beginning of the project until 31/07/2017 | | | |
| B5 | No working hours spent on this action from the beginning of the project until 31/07/2017 | | | |

| Action | Name of staff member | Occupational skill | Position in AUA | Position in Action |
|---|---|---|---|---|
| B6 | No working hours spent on this action from the beginning of the project until 31/07/2017 | | | |
| B7 | No working hours spent on this action from the beginning of the project until 31/07/2017 | | | |
| C1 | No working hours spent on this action from the beginning of the project until 31/07/2017 | | | |
| D1 | No working hours spent on this action from the beginning of the project until 31/07/2017 | | | |
| E1 | 1. George Zervas<br>2. Eleni Tsiplakou | 1. Animal Nutritionist<br>2. Animal Nutritionist | 1. Professor (Task manager)<br>2. Assist. Professor (member) | Participation in project meetings |

**Table 6.** FUB task managers & team members

| Action | Name of staff member | Occupational skill | Position in FUB | Position in Action |
|---|---|---|---|---|
| B1 | 1. Prof. Jürgen Zentek<br>2. Dr. Nadine Paßlack | 1. Veterinarian<br>2. Veterinarian | 1. Professor, Head of the Institute of Animal Nutrition<br>2. Post-Doc at the Institute of Animal Nutrition<br>Both are task managers | No working hours spent on this action from the beginning of the project until 31/07/2017 |
| B2 | 1. Prof. Jürgen Zentek<br>2. Dr. Nadine Paßlack | 1. Veterinarian<br>2. Veterinarian | 1. Professor, Head of the Institute of Animal Nutrition<br>2. Post-Doc at the Institute of Animal Nutrition<br>Both are task managers | No working hours spent on this action from the beginning of the project until 31/07/2017 |
| B3 | 1. Prof. Jürgen Zentek<br>2. Dr. Nadine Paßlack | 1. Veterinarian<br>2. Veterinarian | 1. Professor, Head of the Institute of Animal Nutrition<br>2. Post-Doc at the Institute of Animal Nutrition<br>Both are task managers | No working hours spent on this action from the beginning of the project until 31/07/2017 |
| B4 | 1. Prof. Jürgen Zentek<br>2. Dr. Nadine Paßlack | 1. Veterinarian<br>2. Veterinarian | 1. Professor, Head of the Institute of Animal Nutrition<br>2. Post-Doc at the Institute of Animal Nutrition<br>Both are task managers | No working hours spent on this action from the beginning of the project until 31/07/2017 |
| B5 | 1. Prof. Jürgen Zentek<br>2. Dr. Nadine Paßlack | 1. Veterinarian<br>2. Veterinarian | 1. Professor, Head of the Institute of Animal Nutrition<br>2. Post-Doc at the Institute of Animal Nutrition<br>Both are task managers | 1. Literature review (food waste, nutrition, fibre, protein, cats and dogs); work on the animal care and use protocol; coordination and supervision of the establishment of analytical methods (see B.5.1)<br>2. Literature review (food waste, nutrition, fibre, protein, cats and dogs); work on the animal care and use protocol; coordination and supervision of the establishment of analytical methods (see B.5.1) |
| B6 | 1. Prof. Jürgen Zentek<br>2. Dr. Nadine Paßlack | 1. Veterinarian<br>2. Veterinarian | 1. Professor, Head of the Institute of Animal Nutrition<br>2. Post-Doc at the Institute of Animal Nutrition<br>Both are task managers | No working hours spent on this action from the beginning of the project until 31/07/2017 |

| Action | Name of staff member | Occupational skill | Position in FUB | Position in Action |
|---|---|---|---|---|
| B7 | 1. Prof. Jürgen Zentek<br>2. Dr. Nadine Paßlack | 1. Veterinarian<br>2. Veterinarian | 1. Professor, Head of the Institute of Animal Nutrition<br>2. Post-Doc at the Institute of Animal Nutrition<br>Both are task managers | No working hours spent on this action from the beginning of the project until 31/07/2017 |
| C1 | 1. Prof. Jürgen Zentek<br>2. Dr. Nadine Paßlack | 1. Veterinarian<br>2. Veterinarian | 1. Professor, Head of the Institute of Animal Nutrition<br>2. Post-Doc at the Institute of Animal Nutrition<br>Both are task managers | No working hours spent on this action from the beginning of the project until 31/07/2017 |
| D1 | 1. Prof. Jürgen Zentek<br>2. Dr. Nadine Paßlack | 1. Veterinarian<br>2. Veterinarian | 1. Professor, Head of the Institute of Animal Nutrition<br>2. Post-Doc at the Institute of Animal Nutrition<br>Both are task managers | No working hours spent on this action from the beginning of the project until 31/07/2017 |
| E1 | 1. Prof. Jürgen Zentek<br>2. Dr. Nadine Paßlack | 1. Veterinarian<br>2. Veterinarian | 1. Professor, Head of the Institute of Animal Nutrition<br>2. Post-Doc at the Institute of Animal Nutrition | 1. Preparation for the project meeting and monitoring meeting; Preparation of the 1st progress report<br>2. Preparation for the project meeting and monitoring meeting; Preparation of the 1st progress report |

**Table 7.** HUA task managers & team members

| Action | Name of staff member | Occupational skill | Position in HUA | Position in Action |
|---|---|---|---|---|
| B1 | 1. Lasaridi Katia<br>2. Abeliotis Kostas<br>3. Tragaki Alexandra<br>4. Kyriakou Adamantini<br>5. Fragkopoulou Elisavet<br>6. Kalogeropoulos Nikolaos | 1. Environmental Management<br>2. Environmental Engineering<br>3. Statistics / Data Analysis<br>4. Microbiology<br>5. Biochemistry & Natural Resources<br>6. Food and Environmental Chemistry | 1. Professor (Task manager)<br>2. Associate Professor<br>3. Associate Professor<br>4. Associate Professor<br>5. Assistant Professor<br>6. Associate Professor | 1. HUA team coordination; literature review (food waste, waste analysis, routing); work on routing specifications<br>2. Literature review (food waste, waste analysis, routing); work on evaluation of source separation systems and developing waste analysis protocols.<br>3. Literature review (food waste, waste analysis); work on developing waste analysis protocol and hotel survey.<br>4. Literature review (food waste, microbiological analysis of food waste); work on food waste microbiological analysis protocols.<br>5. Literature review (food waste); preparatory work on food waste analysis and evaluation (protocols, classification etc.)<br>6. Literature review (food waste); preparatory work on food waste analysis and evaluation (protocols, classification etc.) |
| B2 | No personnel for this action | | | |
| B3 | No personnel until now for this action | | | |
| B4 | No personnel for this action | | | |
| B5 | No personnel for this action | | | |
| B6 | No personnel until now for this action | | | |
| B7 | No personnel until now for this action | | | |
| C1 | No personnel until now for | | | |

| Action | Name of staff member | Occupational skill | Position in HUA | Position in Action |
|---|---|---|---|---|
| | this action | | | |
| D1 | No personnel until now for this action | | | |
| E1 | 1. Lasaridi Katia<br>2. Abeliotis Kostas | 1. Environmental Engineer<br>2. Environmental Engineer | 1 Professor (Task Manager)<br>2 Associate Professor | 1. HUA team Coordination; participation in project meetings and 1st project report preparation<br>2. Participation in project meetings and 1st project report preparation |

**Table 8.** TEIC task managers & team members

| Action | Name of staff member | Occupational skill | Position in TEIC | Position in Action |
|---|---|---|---|---|
| B1 | 1. Manios Thrassyvoulos<br>2. Dragassaki Magdalini | 1. Chemical engineer & Agriculturist<br>2. Agriculturist | 1.TEIC team Coordination / Professor (Task manager)<br>2. Assistant Professor (member) | 1. TEIC team Coordination<br>2. Participation in selected hotels source separation system qualitatively and quantitatively survey |
| B2 | 1. Manios Thrassyvoulos<br>2. Dragassaki Magdalini<br>3. Karapidakis Emmanouil<br>4. Loulakakis Konstantinos<br>5. Panagiotakis Spiridon<br>6. Papadimitriou Michalis<br>7. Sakkas Nikolaos | 1. Chemical engineer & Agriculturist<br>2. Agriculturist<br>3. Engineer<br>4. Agriculturist<br>5. Assistant Professor<br>6. Agriculturist<br>7. Engineer | 1. TEIC team Coordination / Professor (Task manager)<br>2. Assistant Professor (member)<br>3. Assoc. Professor/Engineer (member)<br>4. Professor (member)<br>5. Professor (member)<br>6. Professor (member)<br>7. Professor (member) | 1. TEIC team Coordination<br>2. Providing data for the solar drying pilot unit construction<br>3. Designing the solar heating system for the pilot unit<br>4. Designing the solar drying turners and various other equipment<br>5. Designing the building for sorting and grinding and the solar drying halls<br>6. Designing the building for sorting and grinding and the solar drying halls<br>7. Designing the solar drying turners and various other equipment |
| B3 | 1. Manios Thrassyvoulos<br>2. Loulakakis Konstantinos<br>3. Markakis Georgios<br>4. Panagiotakis Spiridon | 1. Chemical engineer & Agriculturist<br>2. Agriculturist<br>3. Mathematician<br>4. Assistant Professor | 1. TEIC team Coordination / Professor (Task manager)<br>2. Professor (member)<br>3. Professor (member)<br>4. Assistant Professor (member) | 1. TEIC team Coordination<br>2. Advisory work for the production process in the pilot unit<br>3. Literature review concerning monitoring of the mass balance in the pilot unit<br>4. Participation in the coordination of progress of the action |
| B4 | 1. Papadimitriou Michalis | 1. Agriculturist | 1. Professor (Task manager) | 1. Literature review concerning analyze of the produced product quality |
| B5 | 1. Karapidakis Emmanouil | 1. Engineer | 1. Assoc. Professor (Task manager) | 1. Literature review concerning indications of shortcomings of the production process, in relation to the product's use for pet food |

| Action | Name of staff member | Occupational skill | Position in TEIC | Position in Action |
|---|---|---|---|---|
| B6 | No personnel until now for this action | | | |
| B7 | No personnel until now for this action | | | |
| C1 | 1. Manios Thrassyvoulos<br>2. Loulakakis Konstantinos | 1. Chemical engineer & Agriculturist<br>2. Agriculturist | 1.TEIC team Coordination / Professor (Task manager)<br>2. Professor (member) | 1. TEIC team Coordination<br>2. Coordination of works in order to assess the impact of the project (preparation for first assessment of performance indicators) |
| D1 | 1. Manios Thrassyvoulos<br>2. Dimou Irini | 1. Chemical engineer & Agriculturist<br>2. Economist | 1.TEIC team Coordination / Professor (Task manager)<br>2. Assistant Professor (member) | 1. TEIC team Coordination<br>2. Participate in networking with other European programs. Preparation of a publicity plan (Networking report) |
| E1 | 1. Manios Thrassyvoulos<br>2. Loulakakis Konstantinos | 1. Chemical engineer & Agriculturist<br>2. Agriculturist | 1.TEIC team Coordination / Professor (Task manager)<br>2. Professor (member) | 1. TEIC team Coordination, Participation in project meetings<br>2. Participation in project management (1st Progress report) |

The organigramme of the Project is presented in Figure 1 below.

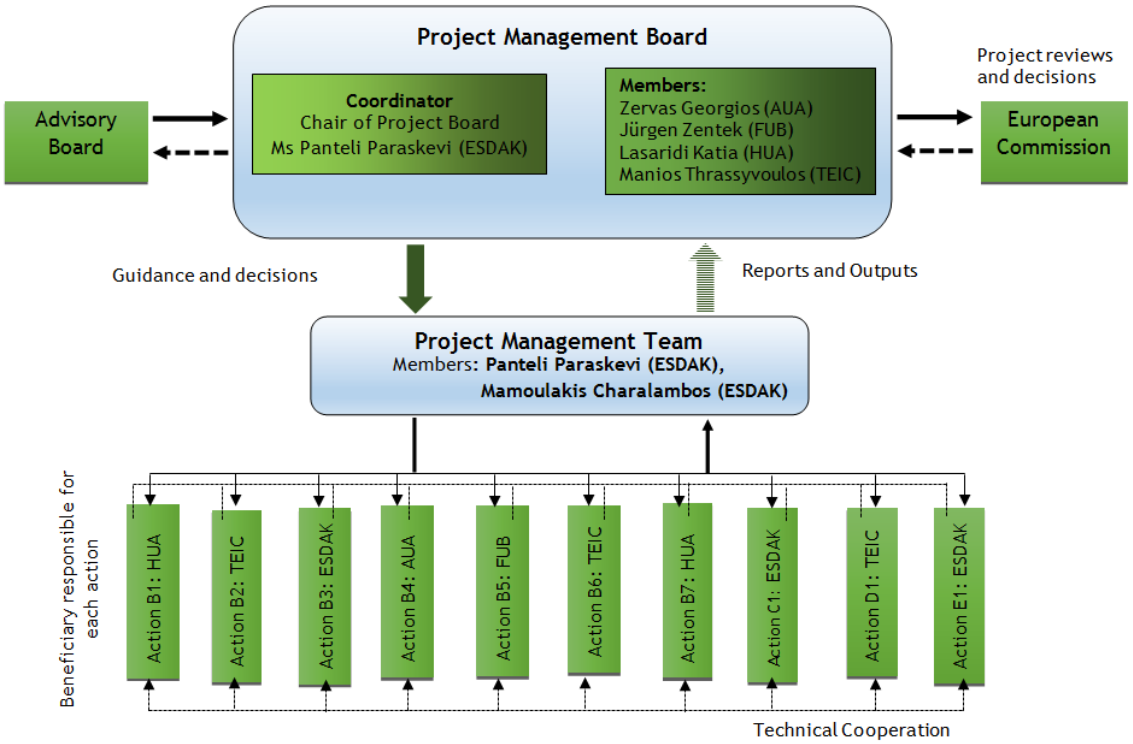



**Figure 1.** LIFE-F4F organigramme

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

The partnership agreements between the Coordinating Beneficiary (ESDAK) and each Associated Beneficiary were signed on the following dates:

- between ESDAK and TEIC, on 5th of December, 2016
- between ESDAK and AUA, on 5th of December, 2016
- between ESDAK and HUA, on 5th of December, 2016
- between ESDAK and FUB, on 9th of December, 2016

The LIFE+ template has been used for the development of the partnership agreements. The partnership agreements are provided in **Annex 1**.

# 5. Technical part

It is noticeable that the food and drink value chain in the EU causes 17% of our direct greenhouse gas emissions and 28% of material resource use, with our consumption patterns having global impacts, in particular related to the consumption of animal proteins and water use. When the environmental impacts of the life cycle food waste are quantified, i.e. not only those linked to the management of food waste (transport, treatment, disposal), but also those generated during the other stages of the life cycle of food, before it becomes waste, it is estimated that food waste generates at least 170Mt of $CO_{2\ eq}$ each year, a figure that represents more than 3% of the total EU-27 emissions in 2010.

In the EU it is estimated that 90 million tn of food wastes are produced every year, an equivalent of 180 Kg per person. As an average, EU presents a better rate of utilization in composting / anaerobic digestion than the USA, but in some countries and especially in the south, the majority of food waste ends up in landfill. In Greece for example, in 2013 more than 95% of food wastes end up in landfill, either directly or indirectly. Waste prevention has been the paramount objective of both national and EU waste management policies for many years. However, limited progress has been made so far in transforming this objective into practical action. Neither the Community, nor the national targets set in the past have been satisfactorily met, in Greece and generally in the Mediterranean region of the EU. Moreover, prevention measures are seldom considered as part of waste management and less effort goes into waste prevention than into its recycling and recovery, which are placed lower in the waste hierarchy.

The F4F process comes to tackle all the above issues, since:

- Supports the implementation of source separation schemes for food wastes, since through that separation they become a valuable raw material for the production of feed.
- It is an excellent example of cycling economy, where the wastes of one process, becomes the raw material for another one. This is waste prevention at its best.
- It's a recycling and reuse process, since food wastes are reused to produce again food (meat). The F4F process is not considered as a waste management process but as a feed producing one.
- It's a low energy/ carbon emission process, since solar power is used (directly and indirectly) to treat the wastes and the possible transformation of used vegetable oils.

The main action in the F4F project is the development and operation of a pilot unit producing 40-50 tn of feed/annum. For its construction and operation, as well as evaluation, the main means that will be utilized is the experience and technical and scientific adequacy of the involved partners. In relation to the objectives and the progress per each action, the following paragraphs have been developed.

## 5.1. Progress per action

### 5.1.1. Action B.1. Development of the Source Separated Food Waste Collection System

| | |
|---|---|
| Foreseen start date: 01/09/2016 | Actual start date: 01/09/2016 |
| Foreseen end date: 31/12/2017 | Actual (or anticipated) end date: 31/12/2017 |

**Activity B.1.1: From the kitchen and the table to the F4F unit – evaluating source separation systems, selecting hotels, designing optimum collection route.**

The characteristics of 24 hotels (28 hotels were approached) identified and the different waste management activities of the hotels were recorded, through questionnaires and interviews with the hotel managers or the food and beverages managers. The initial period of the project will be carried out during the autumn/ winter of 2017 and the required quantity of food wastes will be ensured. The three of the four selected hotels are open all year (city hotels) and the fourth is open almost 70% of the year and it has been estimated that their total food waste production will be able to fully cover the needs of the project. As it is stated in the project's

proposal 2 – 3 hotels will be needed. However, these four hotels have been selected in order to ensure the minimum collected daily quantity of 1-1.5 tonnes of organic wastes. Relevant signed cooperation agreements, a list with all selected hotels and a sample with a filled in questionnaire are attached in Annex 2, Sub-Annex 2.1.

The HUA working team developed the state of the art methodology for conducting the compositional analysis of segregated municipal biowaste for the hotels. The methodology was based on different technical reports, standards and scientific papers given that an international standard methodology has not been established up until now, while a variety of categorisation systems has been developed due to the different focus and objectives of each study. The methodology developed includes procedures for the collection of a representative sample of unprocessed waste from the waste collection vehicle, manual sorting of the waste into individual waste components, data recording and reporting of the results. Overall, forty six (46) batches of source segregated food waste will be analysed, whereas eight (8) parameters-including the compositional analysis, will be quantified in order to characterise effectively the sorted organic material.

The provisions of the developed protocol was embedded to the tender documents for service provision: «Services for the collection and transportation of organic fraction of municipal solid waste and the operation of pilot unit in the framework of the project life F4F» (No. 57/2017 Decision of ESDAK's EC). All relevant documents and the public tender concerning the service for the collection of the MSW during the whole period of the F4F project are all attached in Annex 4, Sub-Annex 4.1., by ESDAK (see above Action B.3. description).

**Activity B.1.2.: Cost estimation methodology for the food wastes collection system**

Collection of MSW in Greece, including food waste, is funded through the municipal taxes, paid to the municipalities by households and business. However, in most Greek Municipalities this is a grossly estimated cost, not fully reflecting the real costs per unit weight of waste (i.e. €/t), paid for the collection, transport and disposal of the wastes. This also became apparent during the process of completion of the questionnaires for the characterisation of hotels and the interviews with hotel managers.

The objective of this sub-action is development of a proper estimation method for the cost per tonne of food wastes. The methodology is based in GIS/ GPS technology and will allow the introduction of various parameters as for example the hour cost of personnel, the size of the hotels, the quality of the source separation scheme etc.

The HUA working team has developed the standards for the GIS/ GPS apparatus and the unique identification of the hotels' bins, necessary for the design of the separate collection system/ optimum routes and the development of a cost estimation methodology. These standards also were included in the tender documents for service provision: «Services for the collection and transportation of organic fraction of municipal solid waste and the operation of pilot unit in the framework of the project life F4F».

**Problems encountered:** No significant problem was noted. Although, the delay of the tendering procedure "Services for the collection and transportation of organic fraction of municipal solid waste and the operation of pilot unit in the framework of the project life F4F" by ESDAK of approximately four months (4) resulted in a delay in the initialisation of actions regarding the compositional analysis and the design collection/ optimum routes as certain important aspects of these sub-actions (e.g. collection and transfer of waste) are subsequent to the successful completion of the abovementioned tender. The tender is concerned with the collection of the MSW for the initial and the operational period of the F4F project and it is almost completed. It is expected that during September the contractor will start up collection from the selected hotels.

The cause of the delayed completion of this tender relates to the delayed licensing of the designated area for the construction of the Biodrying facility. It was not legally possible the tender to be issued if the area for the installation of the pilot unit was not legally approved by all relevant public services.

The selected hotels optimum collection routes and the compositional analysis will be estimated after the service for the collection and transportation of the organic fraction start up. For the period until the completion of the infrastructure of the pilot unit, the contractor will collect and transfer food wastes to a selected by ESDAK area, where qualitatively and quantitative analysis of hotels' separated food waste scheme will take place. In addition, three of the four selected hotels are city hotels operate all the year round and not only in the touristic season and the fourth is operative almost 70% of the year and thus, food waste can effectively be collected during autumn and winter. Therefore, the impact of the delay on the implementation of the overall actions' objectives for the reasons that analysed above is going to be negligible and the Action will be completed on the anticipated time.

**Table 9.** Services for the collection & transportation of the MSW and operation of the pilot unit progress by ESDAK

| **Service Provision: "SERVICES FOR THE COLLECTION AND TRANSPORTATION OF ORGANIC FRACTION OF MUNICIPAL SOLID WASTE & THE OPERATION OF PILOT UNIT IN THE FRAMEWORK OF THE PROJECT LIFE F4F"** | **Date** |
|---|---|
| Primary request to the Financial Service of ESDAK for service provision « Services for the collection and transportation of organic fraction of municipal solid waste and the operation of pilot unit in the framework of the project life F4F » (Protocol No 207/1-2-2017) | 1/2/2017 |
| Publication of Primary request to Central Electronic Registry of Public Contract (KHDMS) (KHDMS No: 17REQ005750962) | 1/2/2017 |
| Credit Acceptance (No. 25/2017 ESDAK Decision) | 1/2/2017 |
| Publication of Decision of ESDAK's Executive Committee (EC) –Acceptance of primary request (KHDMS No: 17REQ005786572) | 10/2/2017 |
| Acceptance to conduct the procurement via National Electronic Public Procurement System (NEPPS) (No. 55/2017 Decision of ESDAK's EC) | 21/3/2017 |
| Acceptance of the study and tender documents for service provision: «Services for the collection and transportation of organic fraction of municipal solid waste and the operation of pilot unit in the framework of the project life F4F» (No. 57/2017 Decision of ESDAK's EC) | 21/3/2017 |
| Committees constitution for the procurement : «Services for the collection and transportation of organic fraction of municipal solid waste and the operation of pilot unit in the framework of the project life F4F» (No. 56/2017 Decision of ESDAK's EC) | 21/3/2017 |
| Publication of the procurement to KHDMS (KHDMS No:17PROC001566895) | 21/6/2017 |
| Publication of the detailed procurement and Annexes to KHDMS (KHDMS No:17PROC001567101) | 21/6/2017 |
| Publication of the procurement to diavgeia.gov.gr (Diavgeia No: Ω7ΘΚΟΡ2Ω-ΓΤ6) | 21/6/2017 |
| Publication of the procurement (with No. 41442) to NEPPS's portal | 21/6/2017 |
| Deadline for offers submission (after a week extension) | 21/7/2017 |
| Opening offers via NEPPS system | 28/7/2017 |
| Pending the contract sign with the contractor, if there is no objection for the tender, during September | Pendimg |

In Annex 2 please find attached all relevant documents concerning deliverables for Action B.1.

| **Deliverable Name** | **Foreseen date** | **Actual date** |
|---|---|---|
| List of targeted and selected hotels and their operational characteristics | 10/2016 | 11/2016 |
| Selected hotels for the needs of the F4F project cooperation agreements signed | 12/2016 | 12/2016 - 04/2017 |
| Selected hotels source separation system qualitatively & quantitative survey | 11/2017 | 11/2017 (anticipated) |
| Short listed and selected hotels optimum collection routes | 12/2017 | 12/2017 (anticipated) |

| Deliverable Name | Foreseen date | Actual date |
|---|---|---|
| Food wastes collection cost estimation system | 12/2017 | 12/2017 (anticipated) |

| Milestone Name | Foreseen date | Actual date |
|---|---|---|
| Initialising qualitatively and quantitative analysis of hotels' source separating food wastes scheme | 04/2017 | 09/2017 (anticipated) |
| Completing optimum route trials | 10/2017 | 11/2017 (anticipated) |

### 5.1.2. Action B.2.: Developing the F4F Pilot Unit

Foreseen start date: 01/09/2016 Actual start date: 01/09/2016
Foreseen end date: 30/06/2017 Actual (or anticipated) end date: 31/10/2017

B.2.1.: Acquisition of needed licenses by ESDAK: The general layout of the F4F pilot unit has been determined. This is in the same field of the bio-drying unit of Municipality of Heraklion. This field has been finally selected due to the direct accessibility from the highway and to the location of the field, as it is almost in the middle of the study area (area with the main hotel units). Moreover, this specific MSW bio-drying unit has plenty of space for the installation of the F4F pilot unit and also has the required infrastructures (for electricity and water supply), as well as a special guarded enclosure. One main reason that this area has been finally selected is that any residue that will occur from the project's production process will be directly disposed to the bio-drying unit. Three other areas have been assessed in the project's proposal; however, the optimum area was this of MSW bio-drying unit. The MSW bio-drying unit treats 75,000tn / yr of MSW and includes the following process steps: 1. Input and weighting of incoming MSW, 2. Uploading and shredding, 3. A 14$^{th}$ day bio-drying, 4. Metals magnetic separation, 5. Compress and bundle of the output MSW and 6. Deodorization and de-dusting of the unit.

The appropriate licenses concerning the construction and the operation of the pilot unit, according to the national legislation have been approved by relevant authorities, the first days of July, 2017 (see licensing procedure in the following Tables, 10, 11 & 12). This is a four month delay as all licenses were foreseen to be approved at the end of February and finally, due to Greek authorities delay this procedure concluded at the first days of July, 2017. The main delay occurred in for the approval of the operational license, due to bureaucracy. More details about licensing procedure are presented in the following Tables.

**Table 10.** Building licensing procedure

| PROCEDURE REGARDING BUILDING LICENSE AND LAND USES |
|---|
| • **9-3-2017:** The document of ESDAK with the protocol No. 421/9-3-2017 submitted to the Directorate of Urban Planning of Municipality of Heraklion in order to request the building license.<br>• **11-4-2017:** The Directorate of Urban Planning of Municipality of Heraklion accepts the request according to their document with protocol No. 27098/11-4-2017.<br>• **15-5-2017:** The file of ESDAK with the protocol No. 821/15-5-2017 submitted to the Directorate of Urban Planning of Municipality of Heraklion in order to certify the "land uses" in the area.<br>• **21-6-2017:** The Directorate of Urban Planning of Municipality of Heraklion responds to the request according to their document with protocol No. 56294/**21-6-2017**.<br>• **3-7-207:** The Directorate of Urban Planning of Municipality of Heraklion responds to the request of ESDAK with protocol No. 421/9-3-2017 which exempts the pilot unit from a building license |

**Table 11.** Environmental licensing procedure

| PROCEDURE REGARDING ENVIRONMENTAL LICENSE |
|---|
| • **31-3-2017:** According to the document with the protocol No. 578/31-3-2017, ESDAK submitted a compliance plan regarding the decision with protocol No. 223/8-3-2017 of Approval of Environmental Terms for the existing work "Pretreatment Unit for municipal solid waste" at the place "Mantra" or "Mavros Spilios" of Municipality of Heraklion, Region of Crete, in order to exempt the Pilot Unit from environmental license.<br>• **11-5-2017:** The Directorate of Environment and Spatial Planning of the Region of Crete accept the request according to the document with the protocol No. 1109/11-5-2017. |

**Table 12.** Operating licensing procedure

| PROCEDURE REGARDING OPERATION LICENSE |
|---|
| • **31-3-2017:** According to the document with the protocol No. 579/31-3-2017, ESDAK submitted a technical file of the Pilot Unit to the Directorate of Industry, Energy and Natural Resources of Region of Crete in order to examine the procedure for the acquisition of the operation license<br>• **11-5-2017:** After communication (telephone and e-mail) and meeting with the responsible authorities in the Office of Vice-Governor for Spatial Planning and Environment of Region of Crete, they requested to fulfill and submit a questionnaire (Annex I of 483/35/Φ.15/17.1.2012 ministerial decision) in order to determine the category and the relevant documents required for the operation license<br>• **12-5-2017:** According to the document with the protocol No. 810/12-5-2017, ESDAK submitted the questionnaire of Annex I for the Pilot Unit of F4F.<br>Complementary, by phone they requested the documents for the other licenses (building and Environmental) as well as for land uses<br>• **12-7-2017:** Answer of Directorate of Industry, Energy and natural Resources with protocol No. 3228/Φ14Γ/12-7-2017. specifying supporting documents for the exemption from the obligation to supply an installation and operating license |

In Sub-Annex 3.1. please find attached the topographical plan with the pilot unit general layout and all requests submitted to the relevant authorities and licenses procedure regarding building license and land uses, procedure regarding environmental license and procedure regarding operation license.

B.2.2.: For the pilot unit construction by ESDAK: The Technical characteristics concerning the pilot unit infrastructures and the relevant equipment, including the prefabricated building for the food wastes hand sorting, a conveyer sorting belt, a grinder, pumps, air condition units, solar thermal units, the floor heating system, the solar drying greenhouse and the concrete floor for the solar drying halls, have been specified. Designs for the pilot unit have been completed, the tender documents have almost been completed and the public tender procedure is being prepared. It is anticipated that this tender will be completed until the first days of October. This is a five month delay, as this procedure was expected according project's timetable to be ready at the end of May, 2017 and due to licensing procedure delays the pilot unit construction is anticipated to be delivered on November, 2017. In Sub-Annex 3.2. please find attached the electro-mechanical study with all relevant designs and the tender documents with designs concerning the construction of the pilot unit. Regarding green procurements, in this public tender, it was decided by PMB (as it was foreseen in the project's proposal) to include a series of legal requirement that support the green procurements.

B.2.3.: Acquisition of the solar drying turners and various relevant equipment by TEIC: The draft tender documents are almost ready for publication which is estimated during September. The turner is anticipated to be delivered on November. According to all deliverables in this Action, the full pilot unit will be delivered and ready to start up the first initial production period on November, 2017, causing a five month delay in the project's timeframe prescribed.

For the implementation of activities in this action (B.2.) and also in actions B.1., B.3., B.6. & B.7., ESDAK hired a supporting external assistance. The public tender carried out on December, 2016 and the contract has been signed between ESDAK and the contractor ENVIROPLAN on January, 18$^{th}$ 2017. For this public tender, concerning ESDAK's external assistant support, there was a delay due to the implementation of the new law legislation (see also paragraph 3.2. of the present report). This delay in the subcontractor responsible for supporting licensing procedure had as a result delay to the licensing procedure. In Sub-Annex 3.3. please find attached the relevant documents concerning the tender.

Despite all delays occurred during the F4F project, the project's main aim and the objectives are still viable, as all partners cooperate in order to cover this delay. Moreover, they already plan to utilize the autumn and winter period (November – March), coming in concert with urban selected hotels for the initial trials. This effort is anticipated to last for a longer period as opposed to the summer season (due to weather conditions), however, they will try their best in order to test the operation of the unit and the production process so as to utilize in proper the next full operational period which has been planned for the Spring of 2018.

According to this partners' plan, the full scale operational period and the optimum operational period will not be affected by the delay arise in the pilot unit construction.

In Annex 3 please find attached all deliverables for Action B.2.

| Deliverable Name | Foreseen date | Actual date |
|---|---|---|
| All licenses for the development of the pilot unit | 02/2017 | 07/2017 |
| The building for sorting and grinding and the solar drying halls | 05/2017 | 10/2017 |
| The full operational solar drying pilot unit | 07/2017 | 11/2017 |
| The solar drying turners and various other equipment | 06/2017 | 10/2017 |

| Milestone Name | Foreseen date | Actual date |
|---|---|---|
| Construction works initiated | 03/2017 | 10/2017 |
| Construction works completed | 05/2017 | 11/2017 |
| Turners delivered | 05/2017 | 11/2017 |
| Unit delivered | 06/2017 | 11/2017 |

### 5.1.3. Action B.3.: Initiating, Operating and Optimising the F4F System

Foreseen start date: 01/09/2016 Actual start date: 01/09/2016
Foreseen end date: 29/02/2020 Actual (or anticipated) end date: 29/02/2020

As mentioned in the previous paragraphs of this report, the operation of the F4F system, under real conditions, is estimated during November, 2017. This is a five (5) month project delay concerning the pilot unit construction and operation. As it was foreseen in the project's proposal, the pilot unit had to be delivered at the end of June and now it is anticipated during November, 2017. Also, it was foreseen that the integration of the pilot unit would last two months but due to the realization of one tender, for the construction and the procurement, it will last for about one month to forty days. However, this delay is not going to affect the project objectives and work plan. All partners, in order to cover the delays occurred in the project so far covering the initiating operation of the projects' pilot unit are going to use the months between November, 2017 and April, 2018, when the second operational period will start up. The full scale operational period and the optimum operational period will not be affected by the delay arise in the pilot unit construction and no potential impact is anticipating for the project.

In case that any delays might arise during the following period of the project, partners propose the following mitigation actions, in order to ensure that the project will achieve its foreseen objectives:

1. Food waste source: taking into consideration that the first initiating period of the project will be carried out during autumn and winter, 2017, the required quantity of food wastes will be ensured, as three of the four selected hotels are all year hotels (city hotels) and their total production will be able to cover project's needs.
2. In case that the quantity from these hotels is not satisfying for the projects' process, there is a potential food wastes, from students' restaurants operating in TEIC and in the University of Crete, to be used. Moreover, large restaurants (such as these related with weddings) existing inside the area presented in the relevant tender for the food wastes collection, can also be used as potential source for food wastes collection.
3. Use of hot water will accelerate the solar drying procedure during winter.
4. Small quantities of the collected food wastes will be also checked using thermal drying in TEIC facilities.

More details concerning Action B.3. are being presented in the following paragraphs.

B.3.1.: For the food waste collection and hand sorting system by ESDAK: The tender documents for this public tender concerning the service for the collection system for the three different periods of the project (initial, full scale & optimum operational period) have been concluded at the end of June, 2017. The Public tendering procedure has been completed on July, 21th. Two offers were submitted finally. On July 28th, a three member Committee established under the Decision No. 56/2017 of the Executive Committee of the ESDAK, which constitute the Tender Committee, in order to open the electronically submitted offers to the electronic tender No. 41442, 1069 / 20-06-2017 of the ESDAK. According to the evaluation of the tenders by the Committee a contractor has been emerged. It is estimated that the contract will be signed during September, if there is no objection from the other candidate. It has been decided by MB to include at this public tender a series of legal requirements that support the green procurement. Regarding green procurements, in this public tender, it was decided to include a series of legal requirement that support the green procurements. As for example, the contractor has to provide for this service an anti-pollution technology refrigerator truck, with low $CO_2$ emissions. Moreover, the contractor should have environmental ISO. In Sub-Annex 4.1., please find attached the tender's relevant documents.

B.3.2.: The initial operational period is aiming in testing all the relevant components without the pressure of a full scale application. In this period, as mentioned in Action 2 there is a four month delay which is going to be overcome by evaluating the autumn and winter, before the start up of the full operational period (which is during Spring, 2018). Technical and operational adjustments might be needed during this period and composition analysis will also be carried out. The experience, the preliminary operational and cost data will be the main gain from this period.

B.3.3. & B 3.4.: The full scale and the optimum operational periods are anticipated to carry out on time, according timetable.

In Annex 4 please find attached deliverables for Action B.3. concerning tenders for the food waste collection system (service for the three periods of the project). Not any other deliverables for this reporting period in this action.

| Deliverable Name | Foreseen date | Actual date |
|---|---|---|
| Data, results and feed produced, during the initiating operational period | 01/2018 | 04/2018 |
| Data, results and feed produced, during the first full scale operational period | 01/2019 | 01/2019 |
| Optimum operational mode | 12/2019 | 12/2019 |
| Data, results and feed produced, during the optimum operational period | 01/2020 | 01/2020 |
| Data, results and biodiesel produced during project | 01/2020 | 01/2020 |

| Milestone Name | Foreseen date | Actual date |
|---|---|---|
| Initiating the 1st year of operation (initial operational period) | 07/2017 | 11/2017 |
| Initiating the 2nd year of operation (1st full scale operational period) | 04/2018 | 04/2018 |
| Initiating biodiesel production for truck | 08/2018 | 08/2018 |
| Initiating the 3rd year of operation (2nd full scale optimum operational period) | 04/2019 | 04/2019 |
| Completing the 3rd year of operation (2nd full scale optimum operational period) | 11/2019 | 11/2019 |

5.1.4. Action B.4.: Evaluating the Produced Feed for Pigs and Poultry Husbandry

Foreseen start date: 01/01/2017 Actual start date: 01/01/2017
Foreseen end date: 31/12/2019 Actual (or anticipated) end date: 31/12/2019

AUA (Prof. G. Zervas and Assist. Prof. Eleni Tsiplakou), from the kick-off meeting in September 2016, has reviewed and collected all the relative GR and EU legislation and discussions concerning the use of the potential "product" which come out of this project. Thus, the relative to the project legislation and/or discussions are: 2009R_1069, 2011R0142, and European Commission, Brussels, 2/12/2015, COM(2015) 0614 final, European Commission, Brussels, ANNEX, 26/1/2017, COM(2017) 33 final, Food and Agriculture Organization 2014. Definitional framework of food loss, Rome, Italy. Retrieved on 17 Decemberfrom http://www.fao.org/fileadmin/user_upload/savefood/PDF/FLW_Definition_and_Scope_2014.pdf. Food and Agriculture Organization (FAO) 2015. E-conference: utilization of food loss and waste as well as non-food parts as livestock feed, FAO, Rome, Italy. Retrieved on 17 Decemberfrom:http://www.fao.org/save-food/news-andmultimedia/events/detail/fr/c/325893/. Further to that, possible end-users of this product have been identified. Finally, Mrs Maria Koukouli has taken care the financial matters of AUA.

No deliverables for this reporting period in this action.

| Deliverable Name | Foreseen date | Actual date |
|---|---|---|
| Complete chemical analysis of the produced feed, through the pigs and poultry husbandry perspective | 10/2018 | 10/2018 |
| Indications of shortcomings of the production process, in relation to the product's use for pigs and poultry husbandry, and suggestion for improvements. | 12/2018 | 12/2018 |
| Economic evaluation of the produced feed, regarding pigs and poultry husbandry | 12/2018 | 12/2018 |
| Complete evaluation of the produced feed for pigs and poultry husbandry | 12/2019 | 12/2019 |

| Milestone Name | Foreseen date | Actual date |
|---|---|---|
| Initiating trials regarding F4F product utilisation as pigs and poultry feed | 10/2017 | 02/2018 |
| Completing trials regarding use as pigs and poultry feed | 10/2019 | 10/2019 |

### 5.1.5. Action B.5.: Evaluating the Produced Feed as Pet Food

Foreseen start date: 01/01/2017 Actual start date: 01/01/2017
Foreseen end date: 31/12/2019 Actual (or anticipated) end date: 31/12/2019

B.5.1. As mentioned above, due to delays in the pilot unit construction, no feed could be analyzed until now. However, several aspects have been initiated from the start date of the action (01/01/2017): The Institute has established a series of analytical methods that will be used for this project. This includes an extended analysis of fibers, which is of great importance for assessing the value of the new feed compounds. Furthermore, the amino acid analysis has been optimized and it is now to fully implement for the tasks in the project. The laboratory services provided in this framework are immediately available and can be used after completion of the feed mixes for the experiments.

B.5.2. As mentioned above, due to delays in the pilot unit construction, no complete diets for dogs and cats with varying amounts of feed could be produced until now. However, FUB (Prof. Zentek and Dr. Paßlack) has initiated the *in vitro*- and *in vivo*-studies from the start date of the action (01/01/2017) by reviewing relevant literature of this research area and writing on the animal care and use protocol for the feeding trials with the dogs and cats. The protocol has to be accepted by the ethics committee in Berlin prior to the start of the *in vivo*-studies.

B.5.3. As mentioned above, due to delays in the pilot unit construction, no additions and alterations in the pilot unit could be suggested until now.

No deliverables for this reporting period in this action.

| Deliverable Name | Foreseen date | Actual date |
|---|---|---|
| Complete chemical analysis of the produced feed, through the pet food industry perspective | 10/2018 | 10/2018 |
| Complete evaluation of the produced feed for pets | 12/2018 | 12/2018 |
| Economic evaluation of the produced feed, regarding pet food utilisation | 12/2018 | 12/2018 |
| Indicators of shortcomings of the production process, in relation to the product's use for pet food, and suggestion for improvements | 12/2019 | 12/2019 |

| Milestone Name | Foreseen date | Actual date |
|---|---|---|
| Initiating trials regarding F4F product utilisation as pet food | 10/2017 | 02/2018 |
| Completing trials regarding use as pet food or pet food component | 10/2019 | 10/2019 |

5.1.6. Action B.6.: Products' Customer Survey, Technical Scale Up, Economical and Environmental Evaluation and Replicability and Transferability of the F4F Process

Foreseen start date: 01/01/2018 Actual start date: 01/01/2018
Foreseen end date: 31/12/2019 Actual (or anticipated) end date: 31/12/2019

This action is anticipated to start up on January, 2018, after the construction and operation of the F4F pilot unit and is anticipated to be completed on time and without any delay, as it is mainly based in the full operation of the pilot unit, where no delay is anticipated in the second and third period of the project.

No deliverables for this reporting period in this action.

| Deliverable Name | Foreseen date | Actual date |
|---|---|---|
| Customer survey regarding pet food (industry & owners) | 12/2018 | 12/2018 |
| Customer survey regarding pigs and poultry (farmers & consumers) | 03/2019 | 03/2019 |
| Technical manuals and designs of a full scale unit | 08/2019 | 02/2020 |
| Operational manuals of a full scale unit | 12/2019 | 02/2020 |
| LCA and environmental evaluation | 08/2019 | 02/2020 |
| Business plan of full scale unit | 08/2019 | 02/2020 |

| Milestone Name | Foreseen date | Actual date |
|---|---|---|
| Surveys initiated | 03/2018 | 05/2018 |

5.1.7. Action B.7.: Completing, Incorporating and Evaluating the F4F Process as Part of the EU's Wastes Strategy and other Union Policies

Foreseen start date: 01/01/2018 Actual start date: 01/01/2018
Foreseen end date: 31/12/2019 Actual (or anticipated) end date: 31/12/2019

This Action is going to be activated as foreseen, after the pilot unit construction and after the first results occur from the project's unit operation, without any delay to be anticipated.

No deliverables for this reporting period in this action.

| Deliverable Name | Foreseen date | Actual date |
|---|---|---|
| Reports and suggestion regarding the role of F4F in the wastes management strategy and how it should be implemented as part of zero wastes scheme | 08/2019 | 08/2019 |
| Reports and suggestions regarding the incorporation of the F4F process in the resources efficiency road map and relevant required | 10/2019 | 10/2019 |

| Deliverable Name | Foreseen date | Actual date |
|---|---|---|
| improvements in the legislation | | |
| Documents regarding the process towards funding the F4F unit through wastes' management municipal taxation | 11/2019 | 11/2019 |
| Data and complete evaluations regarding alternative uses of the F4F product | 12/2019 | 12/2019 |

| Milestone Name | Foreseen date | Actual date |
|---|---|---|
| Initiating biogas and gasification evaluation processes and trials | 01/2018 | 01/2018 |

### 5.1.8. Action C.1.: Monitoring of the impact of the project actions

Foreseen start date: 01/06/2017 Actual start date: 31/10/2017
Foreseen end date: 29/02/2020 Actual (or anticipated) end date: 29/02/2020

C.1.1.: The assessment of the impact of the project's realization in a variety of parameters including socio-economic impact to the local economy and population is anticipated to start up with the pilot unit construction the first evaluation of these indicators to be completed after the construction and operation of the F4F pilot unit.

C.1.2. & C.1.3.: Concerning the impact of the full scale realization of the process and the assessment of the project's socio-economic impact it is anticipated that deliverables will be completed at the end of 2018 and after the pilot unit full scale operation, which is estimated at winter of 2018. First data recording will start up during the construction of the pilot unit, about November, 2017.

However, concerning the indicators monitoring methodology that all partners will follow, this is presented in the excel file attached in Annex 5, Sub-Annex 5.1. of the present report.

For the implementation of this action, ESDAK hired a supporting external assistance, with the title "Support ESDAK in the management/monitoring of the project LIFE F4F procurement according to law 4412/2016". The main object of this service is to support ESDAK's personnel in dissemination actions and in collecting data for project's reports. The public tender carried out on April, 2017 and the contract has been signed between ESDAK and the contractor on May, 25$^{th}$ 2017. The supporting contractor will provide his services for actions C1, D1 & E1 of ESDAK. In Annex 5, Sub-Annex 5.2. please find attached the relevant documents for this external assistance public tender and the contract.

| Deliverable Name | Foreseen date | Actual date |
|---|---|---|
| First evaluation of performance indicators | 08/2017 | 02/2018 |
| Assessment of the initial situation | 09/2017 | 04/2018 |
| Impacts of the project if a full scale unit will be developed | 12/2018 | 12/2018 |
| Qualitatively and quantitatively verification of the impact of the project actions during realisation | 12/2018 | 12/2018 |
| S-LCA completed | 02/2018 | 02/2019 (1st version)<br>02/2020 (revised version) |
| Mid-term evaluation of performance indicators | 01/2019 | 01/2019 |
| Final evaluation of performance indicators | 02/2020 | 02/2020 |

| Milestone Name | Foreseen date | Actual date |
|---|---|---|
| Initiating monitoring on project's impact of the project actions | 09/2017 | 11/2017 |
| Initiating the development of F4F process impacts, when fully realised | 09/2018 | 09/2018 |

### 5.1.9. Action D.1.: Communication and dissemination actions

Foreseen start date: 01/09/2016 Actual start date: 01/09/2016
Foreseen end date: 29/02/2020 Actual (or anticipated) end date: 29/02/2020

D.1.1.: Concerning dissemination activities towards the general public, the following has been done during the reference period by ESDAK:
- A tender for hiring (external assistance – dissemination consultant) a professional team of ESDAK's dissemination actions. The relevant contract has been signed on 17-01-2017 (Sub-Annex 6.1).
- The project's web-site, including e-forum, social media accounts (Facebook, twitter, YouTube, project's logo, a general project's banner, press releases to the local mass media. The web-site and all social media are updated at regularly, mainly after the implementation of project activities (Sub-Annex 6.2).
- The 1st open day carried out on November 24th, 2016 in Crete, in order hotel owners and local community to be informed about the F4F project. During this day representatives from Heraklion municipality and owners or representatives from Heraklion and Cherssonissos municipality participated and were informed about the project's main objectives (Sub-Annex 6.3)

D.1.2.: For the dissemination activities toward professionals related with the F4F process, a tender for hiring a professional team by TEIC is ongoing. This tender concerns dissemination activity toward professionals related with the F4F process and the development of manuals, concerning technical scale up, design and construction and operational manuals. The tender documents is anticipated to be published until the end of September. For the conclusion of this tender a month is required

D.1.3.: Until now, the F4F project partners have participated in the 5th International Conference on Sustainable Solid Waste Management, in Athens, 21-24 of June, 2017. HUA participated with a short review of the waste management prevention methods of the hospitality section and a paper based on the results of the questionnaires in relation to the F4F project has been submitted to a scientific journal and ESDAK participated with a poster and a presentation (Sub-Annex 6.4).

D.1.4.: The layman's report will be submitted after the project's completion. The first notice boards will be displayed in the pilot unit, during and after construction, which is estimated to be from November, 2017. Moreover, about ten notice boards is estimated to be placed during the project (mainly during the pilot unit construction) at strategic places, such as Municipality of Heraklion, ESDAK, TEIC, University of Crete, AUA, HUA, FUB, Geotechnical Chamber of Greece, Department of Crete, in the Pilot Unit and in the MSW bio-drying unit of Heraklion.

D.1.5.: In the context of networking, the F4F project has participated in the 25th year celebration of EU supporting Nature, Environment & Climate Action through LIFE, in Athens, 18th of May, 2017 with a stand (Greek LIFE Task Force) (Sub-Annex 6.5)

D.1.6.: It is anticipated after the construction and operation of the pilot unit.

In Annex 6 please find the deliverables concerning dissemination during this first reporting period.

| Deliverable Name | Foreseen date | Actual date |
|---|---|---|
| Website and social media accounts | 12/2016 | 01/2017 |
| Notice boards | 08/2017 | 11/2017 |
| Leaflet and newsletter for the benefits and need of source separation in households, aiming for the general public | 12/2018 | 12/2018 |
| General public leaflet | 12/2018 | 12/2018 |

| Deliverable Name | Foreseen date | Actual date |
|---|---|---|
| Replicability and transferability activities report | 12/2019 | 12/2019 |
| Networking report | 12/2019 | 12/2019 |
| Report about dissemination activities towards private entities | 12/2019 | 12/2019 |
| Open day events | 10/2019 | 02/2020 |
| International conference | 10/2019 | 02/2020 |
| Publication of academic papers | 02/2020 | 02/2020 |
| Layman's report | 02/2020 | 02/2020 |

| Milestone Name | Foreseen date | Actual date |
|---|---|---|
| Hiring professional group for focused dissemination activities | 01/2017 | 01/2017 |
| Initialising dissemination activities related with the pilot unit | 08/2018 | 08/2018 |
| Lists of private entities | 08/2018 | 08/2018 |
| Initialising professional meetings aiming to a full scale unit | 01/2019 | 01/2019 |

5.1.10. Action E.1.: Project management and monitoring of the project progress

Foreseen start date: 01/09/2016 Actual start date: 01/09/2016
Foreseen end date: 29/02/2020 Actual (or anticipated) end date: 29/02/2020

During the reporting period, following the Grant Agreement signature with the EC (June 17th 2016) and the Partnership agreements between the Coordinating Beneficiary & the Associate Beneficiaries that are attached in **Annex 1**, the project was initiated and the following meetings (technical and management) have been organized:

The Kick-off meeting took place in Crete, on September 30th 2016, where representatives of all project partners participated. All scheduled activities were planned and tasks were allocated to each responsible beneficiary. The internal communication procedures of the consortium were also set. Before the Kick off meeting, the 1st partners meeting carried out on September 29th, 2016. In **Sub-Annex 7.1.** please find attached the meeting agenda, the participants list and the minutes of the Kick off meeting.

The 2nd partners' meeting took place in Athens, on April, 6-7th 2017 with the participation of the partners from Greece. More specifically, project partners discussed the project's progress by action, LIFE+ Common Provisions, Project management, financial aspects future activities. The team resolved some technical issues, public tendering procedure, and financial issues. In **Sub-Annex 7.2.** please find attached the agenda, the participants list and the minutes of the meeting.

The 3rd partners' meeting realized in Crete, on 29th of June, 2017. All Greek partners participated. Project progress by partner, Financial issues, Next steps, Monitoring visit-Discussion/Preparation were discussed during this meeting. In **Sub-Annex 7.3.** please find attached the meeting agenda, the minutes and the participants list.

The 1st monitoring visit carried out in Crete, on 30th of June, 2017. In **Sub-Annex 7.4.** please find attached the meeting agenda, the participants list and the minutes of the meeting.

Beside these meetings, frequent communication between the PMB and project team members was carried out via e-mails and phone calls. Project team members, with the assistance of the PMB & PMT are in collaboration as well as with all stakeholders relevant to the project implementation, in order to ensure that the project will eventually reach its objectives.

Additionally the PMB, via the main contribution of the project manager established the procedures for the financial management of the project:

- Signing of partnership agreements.
- Establishment of the timesheets to monitor the personnel work.
- Collaboration with the financial departments of all partners in order to clarify and set the project's financial requirements.

| Deliverable Name | Foreseen date | Actual date |
|---|---|---|
| 1st progress report | 08/2017 | 09/2017 |
| Mid-term report | 01/2019 | 01/2019 |
| Final report | 05/2020 | 05/2020 |

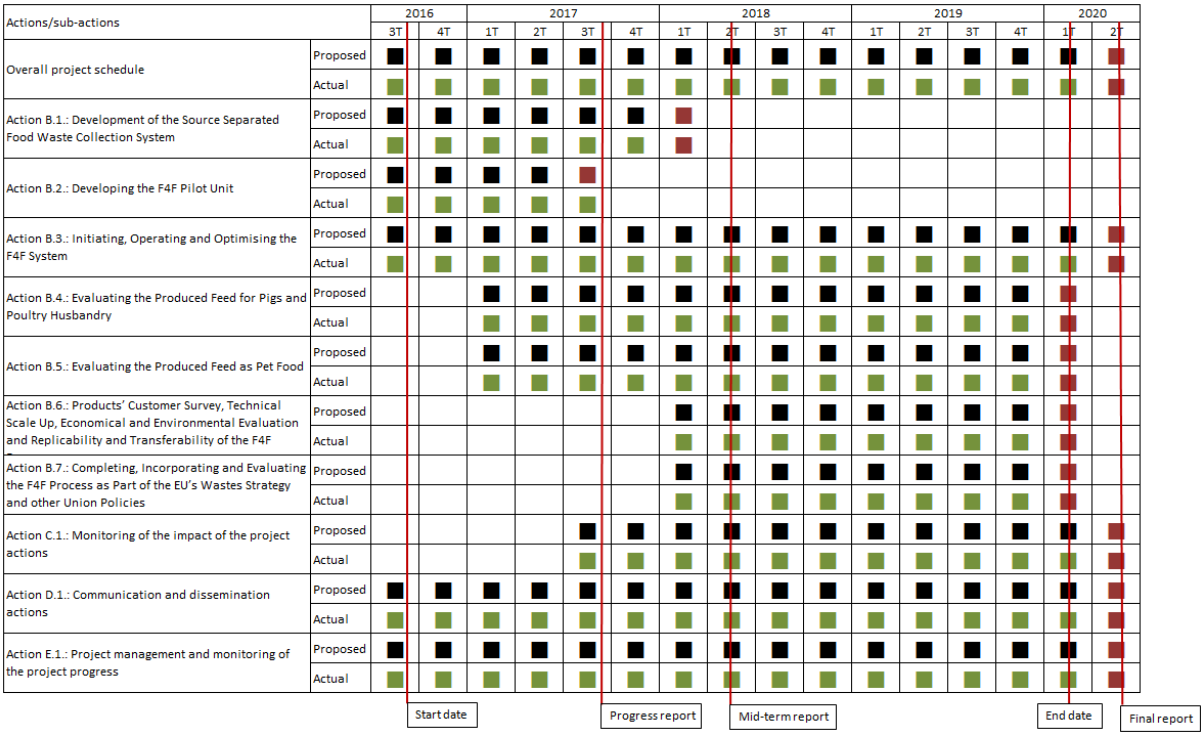
| Milestone Name | Foreseen date | Actual date |
|---|---|---|
| First meeting of the management board | 01/2017 | 09/2016 |
| 1st progress report submission | 08/2017 | 09/2017 |
| Mid-term report submission | 01/2019 | 01/2019 |
| Final report submission | 05/2020 | 05/2020 |

## 5.2. Envisaged progress until next report

In Table 13 the F4F project's timetable is presented. Until the next project's report, which is anticipated to be the mid-term report, during spring 2018, the following will be done:

- The food wastes collection cost estimation system
- The food wastes composition analysis
- The completion of the optimum rout trials
- The construction of pilot unit infrastructures
- The full operation of the pilot unit
- Data, results and feed produced, during the initial and the optimum operational period
- Data and first results from biodiesel production

**Table 13.** F4F project's timetable



## 5.3. Impact

During the reference period no impact of the project has been occurred as the pilot unit has not been constructed yet. All the impacts that will occur concerning Nature & Biodiversity, Environment & Reuse Efficiency, Climate Action, and Environment Governance & Information will be referred in the next project's report.

## 5.4. Outside LIFE

During the reference period no action has been taken place outside the framework of the LIFE project.

# 6. Financial part

## 6.1. Costs incurred[4]

| Budget breakdown categories | Budgeted costs in €* | Costs incurred from the start date to 31/07/2017 in € | % of Budget** |
|---|---|---|---|
| **1. Personnel** | 1.401.925,00 | 266.057,88 | 18,98 |
| **2. Travel and subsistence** | 70.000,00 | 6.926,04 | 9,89 |
| **3. External assistance** | 489.531,00 | 9.755,30 | 1,99 |
| **4. Durable goods** | | | |
| **Infrastructure** | 75.000,00 | 0,00 | 0,00 |
| **Equipment** | 115.060,00 | 0,00 | 0,00 |
| **Prototype** | | | |
| **5. Land purchase / long-term lease** | | | |
| **6. Consumables** | 247.000,00 | 1.299,83 | 0,53 |
| **7. Other Costs** | 23.000,00 | 3.741,63 | 16,27 |
| **8. Overheads** | 159.103,00 | 20.143,20 | 12,66 |
| **TOTAL** | **2.580.619,00** | **307.923,88** | **11,93** |

| Action number and name | Budgeted costs | Budgeted hours | % of Budget spent | % of hours spent |
|---|---|---|---|---|
| **Action B.1** " Development of the Source Separated Food Waste Collection System" | 317.294,00 | 4.656 | 27,21 | 75,54 |
| **Action B.2** " Developing the F4F Pilot Unit" | 261.490,00 | 3.160 | 28,65 | 95,16 |
| **Action B.3** " Initiating, Operating and Optimising the F4F System " | 531.212,00 | 10.288 | 4,53 | 8,35 |
| **Action B.4** " Evaluating the Produced Feed for Pigs and Poultry Husbandry " | 157.140,00 | 4.584 | 0,00 | 6,54 |
| **Action B.5** " Evaluating the Produced Feed as Pet Food " | 195.885,00 | 4.616 | 12,34 | 3,01 |
| **Action B.6** " Products' Customer Survey, Technical Scale Up, Economical and Environmental Evaluation and Replicability and Transferability of the F4F Process " | 132.170,00 | 3.504 | 0,00 | 0,00 |
| **Action B.7** " Completing, Incorporating and Evaluating the F4F Process as Part of the EU's Wastes Strategy and other Union Policies " | 143.855,00 | 3.832 | 0.00 | 0,00 |
| **Action C.1** " Monitoring of the impact of the project actions " | 98.370,00 | 2.984 | 1,46 | 2,65 |
| **Action D.1** " Communication and dissemination actions " | 288.790,00 | 6.592 | 7,18 | 10,65 |
| **Action E.1** " Project management and monitoring of the project progress " | 295.310,00 | 11.280 | 19,07 | 13,55 |
| **TOTAL** | **2.421.516,00** | **55.496** | **12,72** | **18,55** |

[4] The tables include the costs incurred within the framework of the project, from 01/09/2016 to 31/07/2017 by ESDAK, TEIC, HUA and FUB partners. Expenditures incurred by AUA have not been included. These tables will be uploaded within next week.

# 7. Annexes

**Annex 1. : Partnership agreements**

1. *Contract_ESDAK-FUB*
2. *Contract_ESDAK-AUA*
3. *Contract_ESDAK-TEIC*
4. *Contract_ESDAK-HUA*

**Annex 2. : Deliverables for Action B.1.**

*1. Sub-Annex 2.1. Hotels agreements, questionnaire, etc*

**Annex 3. : Deliverables for Action B.2.**

1. *Sub-Annex 3.1. Licenses*
2. *Sub-Annex 3.2. Tenders construction*
3. *Sub-Annex 3.3. Tenders for ESDAK external support*

**Annex 4. : Deliverables for Action B.3.**

*1. Sub-Annex 4.1. Tenders for food waste collection system*

**Annex 5. : Deliverables for Action C.1.**

1. *Sub-Annex 5.1. Indicators_Methodology*
2. *Sub-Annex 5.2. Tender for ESDAK external assistance*

**Annex 6. : Deliverables for Action D.1.**

1. *Sub-Annex 6.1. ESDAK dissemination consultant*
2. *Sub-Annex 6.2. Logo, facebook, social media, etc*
3. *Sub-Annex 6.3. 1st Open day*
4. *Sub-Annex 6.4. Conferences*
5. *Sub-Annex 6.5. Networking*

**Annex 7. : Deliverables for Action E.1.**

1. *Sub-Annex 7.1. Kick off & 1st partners meeting*
2. *Sub-Annex 7.2. 2nd partners meeting*
3. *Sub-Annex 7.3. 3rd partners meeting*
4. *Sub-Annex 7.4. 1st monitoring visit*