



LIFE + Environment Policy and Governance

TECHNICAL APPLICATION FORMS

Part C – detailed technical description of the proposed actions

Important note:

- **All calculations and detailed cost breakdowns necessary to justify the cost of each action should be included in the financial forms F. In order to avoid repeating the financial information (with the risk of introducing incoherencies), Part C should only contain financial information not contained in the financial forms.**
- **All forms in this section may be duplicated, so as to include all essential information.**
- **Any action that is sub-contracted should be just as clearly described as an action that will be directly carried out by the beneficiaries.**

DETAILS OF PROPOSED ACTIONS

ACTION 1: Management and administration

Description (what, how, where and when):

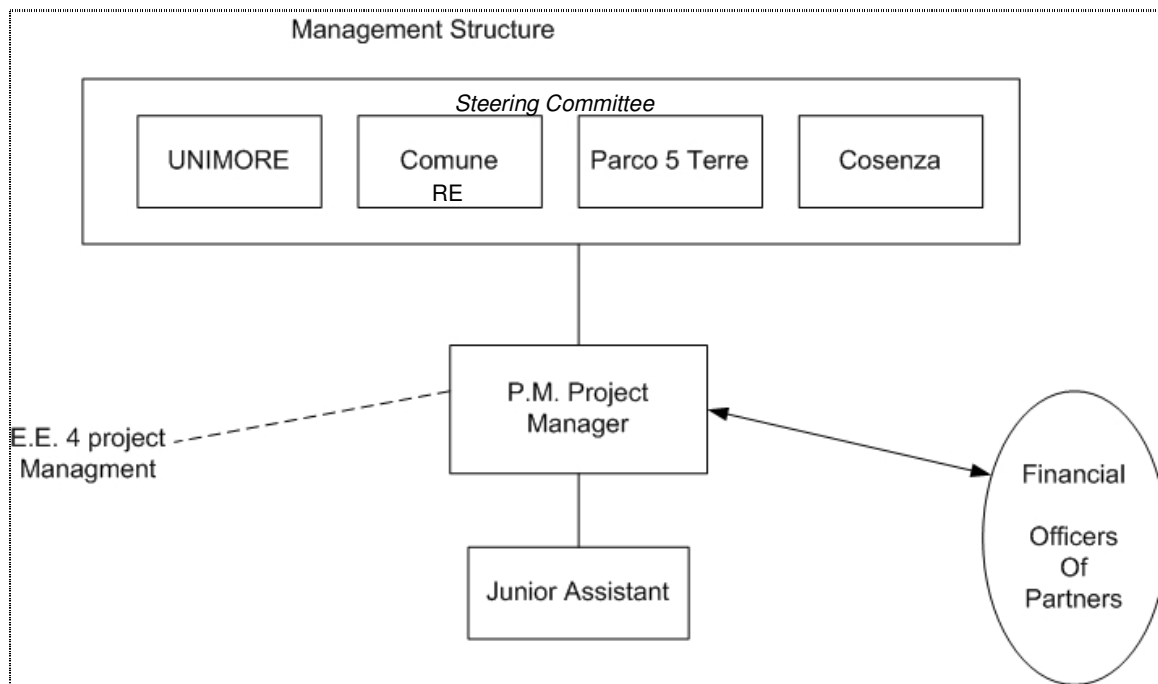
The overall objective of this action is to provide a successful coordination and management of the individual actions and activities in order to accomplish the project's goals and objectives within the budget constraints. More specifically:

- to proceed to the most productive use of the resources allocated to the project;
- to provide a liaison between the European Commission and the partners;
- to detect and solve any critical problem ;
- to maintain technical control over the project;
- to successfully administer all financial transactions related to the project;
- to review and finalize all internal reports and deliverables;
- to provide the overall quality assurance of the project's deliverables.

The project targets ambitious goals that can only be achieved with careful planning and dynamic coordination among the different actions and among coordinating beneficiary and associated beneficiaries. The project will be led by the project manager (PM) appointed by University of Modena and Reggio Emilia (UNIMORE). The project manager will be an expert with previous experience in project management (this PM will be employed for the whole duration of the project) The project manager will be supported by a part time junior assistant. External Expertise will be hired specifically to support the University in drafting the reports the junior assistant will be entrusted with the day to day monitoring actions . the PM will lead all Steering Committees.

The project manager will have the ultimate project responsibility and the liason with the EC. However, all partners will contribute to project management functions, such as participating in project meetings, steering committee, technical working group, technical and administrative reporting. Being the project basically focused on an Italian partnership steering committees and technical working group meetings will be cost effective and will not require major travelling. Partners will use Italian as the main communication/project management language even though all reports along with major dissemination products will be available also in English giving the intention do disseminate the project results on a wider international scale.

Partners responsible for different actions will be responsible for reporting monthly to the PM (monitoring action) on the technical progress, achievements and status of the activities that they lead. This will be done through constant communication through e-mail managed by the junior assistant. One of the main tasks of the PM and its staff will furthermore be to ensure good collaboration between the different actions, i.e. to make sure that each activity and action is in line with required inputs from other actions. Partners will refer to PM and its assistant on financial matters through the involvement of their corresponding financial officers. The project management structure is sketched in the following chart.



The Coordinating Beneficiary will manage the 10 SC having the meetings both a scientific coordination role (acting as a technical exchange committee besides having the management functions). Partners will be asked to attend the meetings with the designated project managers. 6 out of the 10 meetings will also have an administrative coordination functions: partners will attend to these meetings also with one person in charge of all the financial and administrative issues.

Each of the 6 meetings having also a an administrative overview will produce minutes which will be sent in as additional reports which will be addressed to the inception report / the mid term report and the final report.

The steering committee has the overall responsibility for delivering the objectives and benefits of the project. Each partner is represented to the board with a manager (town councilor for local public authority) having full knowledge of the project and its actions.

SC will take care of the following actions with the:

- project assurance
- risk management
- quality management
- technical direction of the project
- conformity with the partners' objectives, the SC
- the resolution of conflicts.
- review the technical and research aspects of the project.
- define the technical directions of the project and identify new solutions; notify, technical modifications in accordance with the aims of the project and different reallocation of resources;
- evaluate and approve the final technical results;
- ensure that the work plan is respected and to notify the SC of any deviations from the work plan;
- establish standards for the reports, presentations, and deliverables.

The lead partner senior project manager will be chairing the sessions and calling all the meetings. The appointed senior manager being supported by an assistant will implement the following management duties:

- co-ordinate the work carried out, keeping strictly to the predefined timetable;
- send out the inception report
- ensure that, soon after the project starts, a detailed Quality Plan is agreed;
- be responsible for the efficient administration of the project;

- collect, monitor and integrate all the financial and administrative data from the partners, and prepare them for submission to the Commission;
- send out the mid term report
- be the contact person for the project with the Commission;
- decide on actions and activities commencement and use of the project's resources;
- control and review the financial and technical progress;
- verify the correct development of the project plan and adopt appropriate actions to correct deviations from the schedule;
- discuss and approve the detailed plan for the next months' activities;
- decide on proposed modifications to the actions and activities in accordance with discussion with the Commission;
- promote and stimulate the establishment of contacts with other projects;
- promote and approve the attendance and the presentation of papers, at conferences and symposia.
- Send out the final report

The activities foreseen in this action are:

1.0 work plan finalization 1.1 Project presentation / administrative start-up of; 1.2 Monitoring project meetings; 1.3 Reporting.

This action will be carried out by Università di Modena e Reggio Emilia (UNIMORE) with the support of external consultants.

Methods employed:

Activity 1.0 will guarantee an effective start up of the project. A **detailed work plan** will be drawn up by the project manager to plan the activities and responsibilities of each partner (in close cooperation with all partners). This activity anticipates the definition of the Operational Plan and presentation of the project at the kick-off meeting.

Activity 1.1 points at guaranteeing a proper commencement to the work. A **contract**, written by the beneficiary, will be proposed which stabilizes the respective obligations and commitments of the partners which will be discussed during the initial phase. The partnership is built upon pre-existing contacts which allows for partners to be well engaged on the action and ready to start.

Initially partners will agree on an **Operational Plan** defining the scientific standards and setting the TORs (Terms of Reference) / guidelines for the project implementation.

The LP will draft an **Administrative Operating Manual** that will be shared with partners for the reporting to the EC, containing means and times for evaluating the financial and technical status of the project.

The involvement of the partners will be guaranteed through initial informal contacts / definition of partnership agreements and through the definition of a **kick off meeting** which will include both a project presentation + administrative/ financial workshop. The administrative monitoring of the project will thus start immediately along with the research / Best Practice (BP) mapping actions. Among the most relevant outputs of this action is the **administrative template package (included in the Administrative operating manual)** which will be illustrated and delivered to all partners in order to guarantee proper reporting and management of all actions. The templates will be filled in and presented by each partner to the administrative SC.

Activity 1.2 will be ongoing depending on the project senior management which verifies the project's proper progress. A "monitoring process" will be discussed and approved at kick off meeting, setting modalities for monitoring and communication between partners and with European Commission. The SC meetings will support this and will represent the main action to be implemented which will guarantee coordination and project smooth running. There will be **10 SC (included meeting of partners during the SC)** of these 4 will be exclusively technical and will be implemented through video conference and long distance communication. The other 6 meetings on the other hand will be organized in the different partners' cities.

Activity 1.3 deals with the constant communication among partners, Beneficiary, and the EC. The Partners are aware that it is important, for the success of the project, to provide to the Commission a number of reports, aimed to control the progress of the project, as well as eventual discrepancies with the original plan, and the solutions proposed to address them. In accordance to the LIFE Provisions, the coordinating beneficiary will provide the reports detailed in the “activity reports foreseen” chart.

The project manager will verify the project’s proper progress. A “monitoring process” will be discussed and approved at kick off meeting, setting modalities for monitoring and communication between partners and with European Commission. “Monitoring process” will define the frequency of the submission of needed documents and project material from the partners to the Coordinating beneficiary in order to honour deadlines for reporting to the Commission, in accordance with LIFE Provisions.

Constraints and assumptions:

It is assumed that good collaboration will exist between partners and different actions, and the PM will make sure that the work in each action is in line with the required inputs from other actions. To this end the Project Manager will have to maintain detailed knowledge of the work done in the different actions by different partners.

Beneficiary responsible for implementation:

University of Modena and Reggio Emilia

Expected results (quantitative information when possible):

Effective management of the project and the Consortium through regular meetings of the SC. The regular development of the project throughout the detection and resolution of any criticality that may occur.

Indicators of progress:

- N° of participant to SC,
- N° of meetings of SC,
- % participation to the meetings, respect of time to present the reports to the project manager,
- respect of date to submit the progress, mid-term and final reports to the Commission by the coordinating beneficiary.
- time to award contract respected,
- number of reports delivered,
- number of meeting minutes drafted and circulated.

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ACTION 2: Monitoring of waste collection in natural parks

Description

The objective of this action is to:

- Consider as fundamental starting point European policies and commitments to promote recycling of waste and changing the waste management patterns.
- Identify studies and analyses as a starting point. Identify and refine the data collection and analysis for the harmonization of the calculation mechanism with reference to differentiated waste collection at the Italian Level. Special focus will be given to the peculiar environment of national parks.
- Creating a Data Base containing the field related best practices in Italy and Europe (linked to the local authorities' commitment towards waste management recycling and energy recovery from waste).

The activities foreseen by this task are: 2.1 review of existing differentiated waste management percentages calculation (to be implemented following a strict collaboration with the ISPRA – Istituto Superiore per la protezione e la ricerca Ambientale waste Service), 2.2 review at regional and international level of methodologies / regulations adopted to calculate the difference waste recycling percentages, 2.3 Links with other existing regional Projects with a special emphasis dedicated to practices implemented in parks and natural reserve areas, 2.4 creation of a Database and monitoring / reporting mechanism to be used and shared at national level which will be considered a the basis also for international confrontation at the EU level.

These activities will be carried out by the responsible beneficiary as the project will be operative

Methods employed

A2.1 The first activity will be implemented through a very strict collaboration with ISPRA which is already involved in the publishing of the “Rapporto Rifiuti” a periodic report containing a detailed calculation of the waste management and recycling practices analyzed at the provincial level. The action aims at harmonizing the calculation mechanisms among the difference provinces and also at better identifying the level of assimilation of urban waste. A very close collaboration with the Osservatorio Nazionale sui Rifiuti will be implemented in order to develop a research action in line with all existing studies. A special attention will thus be dedicated in trying to isolate the calculation and percentages for urban areas natural parks and natural reserve areas. A Report on the harmonization needs highlighting the main existing differences will be issued. A report of energy in natural parks will be made in order to state the optimal size of an energy recovery system from waste. It is foreseen to realize a CHP system (Combined heat and energy production) whose size should not be larger than local energy demand. Hence, this monitoring analysis will be used in the implementation phases (Actions 3, 5, 6) in order to state what is the optimal size of the demonstrator of energy recovery system.

A2.2 The second activity will have a specific focus on the comparison of existing regional regulations in terms of calculation the recycling percentages. The project will start focusing on the comparison of the existing regulations and legislation in place in the regions covered by the project (Regione Emilia Romagna /Liguria/ Calabria / Lombardia) expanding this comparison and study also to the other existing regulations thus mapping the main differences which at present exist at the national level in terms of waste recycling and waste energy recovery.

In summary the local regulation of waste management, of energy recovery and recycling will be investigated. Many authorities in this area are local authorities and this sub-activity has a two-fold purpose. The first aim is to speed up the authorization process of the demonstrators (Action 5 and 6), the second is to harmonize local regulation so as to foster such plants. In Action 7 these results will be spread to stakeholder at national and European level.

A2.3 the third activity will be conducted through the mapping of existing national and international projects on waste management / energy recovery from waste, implemented specifically in parks or natural reserve areas. Projects will be analyzed in order to compare existing practices, disseminate among other regions and at national level the best calculation mechanisms.

A2.4 the above mentioned review of the regional regulation along with the analysis of the existing practices implemented specifically in natural parks and reserves will be gathered in a **single database** with the aim of constantly monitoring the situation at the national level, harmonizing the existing practices and facilitating the dissemination of the best calculation mechanisms along with the best practices in terms of waste recycling and applied energy recovering systems.

Constraints and assumptions

The project assumes the collaboration with ISPRA which should not be problematic given the strong connections which exist between the partnership and this organization. The project assumes furthermore that it will find full collaboration at the regional level in gathering the existing data. Problems may occur in getting in touch with the different regional administrations especially the ones not involved in the project. A strong collaboration with the national organizations will help in avoiding this problem.

Beneficiary responsible for implementation:

Comune di Reggio Emilia will be responsible for this action

Expected results (quantitative information when possible):

- Monitoring report on the waste management policies adopted by local authorities
- Stakeholders adopt suggestions stemming from the Monitoring report replicating the positive effects
- Creation of a waste recycling / energy recovery data base, accessed by all stakeholders involved.

Indicators of progress:

- n. of regional legislation reviewed
- n. project analyzed
- Identification of accounting mechanism
- Number of projects mapped
- Number of contacts for the use and dissemination of database
- Number of contacts for the use and dissemination of report

ACTION 3: Integrated cycle for waste management and energy recovery

Description

This action is aimed at developing an innovative integrated cycle for energy recovery from waste.

Unimore will investigate the current state-of-the-art solutions for energy recovery from waste with special reference to the peculiar characteristics of natural parks in terms of waste type and energy demand. The chosen energy recovery plant will transform differentiated waste into energy (biogas, hydrogen, electricity, heating/cooling).

The added value of the energy recovery plant is the availability of heat, cooling and electricity for the needs of park buildings.

The block diagram of the proposed energy recovery plant is reported in Fig. 1.

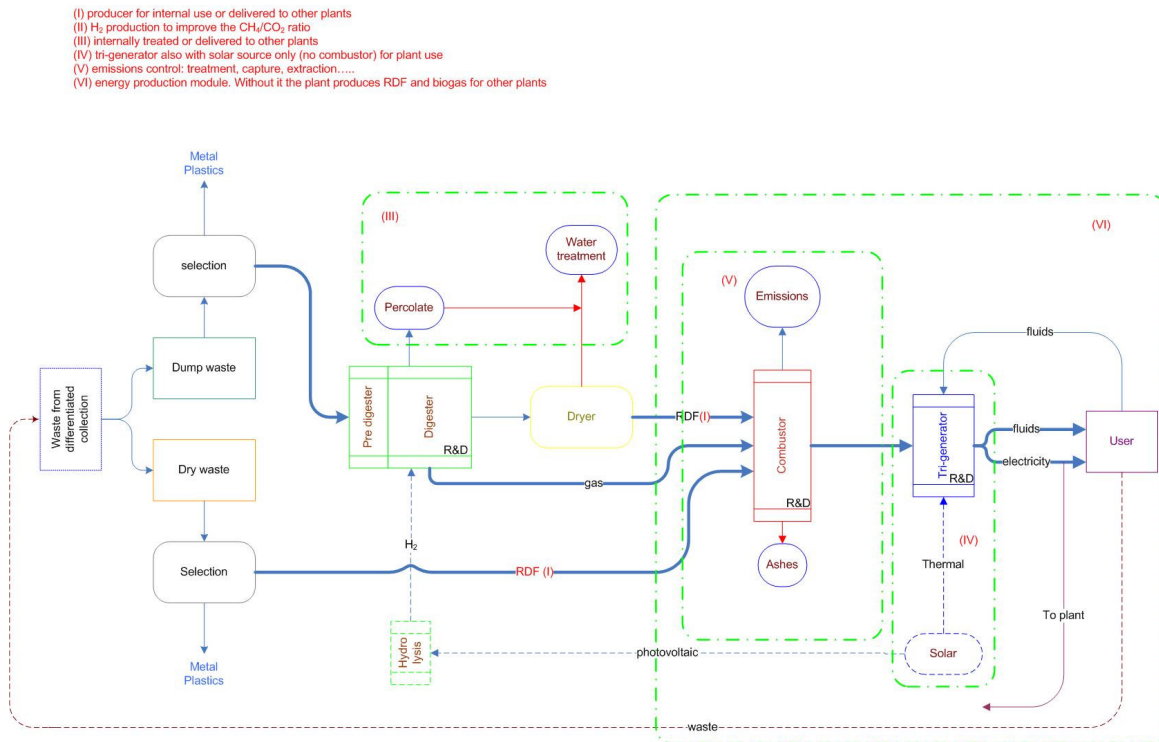


Fig. 1 Block diagram of a bio-mechanical innovative chain for energy recovery from waste.

The energy recovery system is composed of three main parts:

- 1) An anaerobic digester that transforms the wet part into biogas;
- 2) A combustion chamber that transform biogas and dry waste into high temperature heat (> 500 °C);
- 3) A CHCP (combined heat and cooling production) plant that converts the heat into cooling power and electricity. Solar energy can be added at this stage to integrated heat/cooling production and electricity production.

Regarding EU waste management policies, the hierarchy of principles established by Directive 75/442/EEC is as follows: prevention, recycling, energy recovery and safe disposal. The average level of domestic recycling in the European Union is 26% but it varies considerably from one country to another (from 8% to 63%).

As can be seen, the overall aim and priority of European waste-management policy is waste prevention – the most challenging task for waste management. For waste that is generated, the EU waste strategy calls for increased recycling and energy recovery to prevent disposal, such as landfill or incineration without energy recovery.

Thus EU regulations promote material recovery over energy recovery from waste.

Given the operating scenario of the natural park, in case the waste input is made mainly of dry waste and/or ligneous vegetable waste from forestry management, the proposed plant might be changed removing the digester and producing only CDR without the CHCP subassembly. If the supply of natural, untreated wood is consistent, a pelletizer machine can be implemented, for production of wood pellets for home heating of the park district. This is consistent with EU regulations that promote material recovery.

The CHCP can be removed also in those cases where the energy demand in terms of electricity and heat/cooling at park premises is low.

Two scaled demonstrator will be realized in the partners parks in order to monitor results and tune the design phase.

Methods employed

Analysis of state-of-the-art solutions seeking for those avoiding the use of fossil fuels and toxic pollutants. Reporting on models and means defined.

Investigation of integration between traditional technologies and those based on solar energy.

Adoption of technologies based on CO₂ segregation.

Constraints and assumptions

It is assumed that Unimore and ENIA will work in close agreement towards the analysis of state-of-the-art solutions. A scaled demonstrator will be set up at Parco 5 terre. Then Provincia di Cosenza will provide specifications for a demonstration plant.

The final choice will be made relying on actual specifications and peculiar characteristics of natural parks. The outputs of action 2 will be beneficial to the final choice.

To this end the Project Manager will have to maintain detailed knowledge of the work done in the different actions by different partners.

Beneficiary responsible for implementation:

University of Modena and Reggio Emilia - Unimore

Expected results (quantitative information when possible):

Design of the energy recovery system tailored for the national parks.

Analysis of reduction of emissions thanks to the increase of available energy for natural park needs. It is expected that the adoption of current state-of-the-art technologies will lead to the adoption of current state-of-the-art technologies will lead to the following figures, corresponding to a waste input of 100 kg/day (36.4 t/year):

- 500-1000 MWh/year electrical production. The proposed technology provides either electrical or cooling power. The two can be mixed considering that each kWh (electrical) corresponds to 3 kWh (cooling) because of the COP of the cooler;

- 2200 -5000 MWh/year of heating production.

- an overall peak efficiency of about 65-70%, thanks to the combined production of electrical power (or cooling power) and heating.

- a reduction of CO₂ emissions of about 800 g/kWh (for electrical side) and of 266 g/kWh (for cooling side) in summer months, and of about 200 g/kWh (for heating side) in winter months;

- reduced maintenance costs with respect to traditional CHCP systems based on Internal Combustion Engines (ICE) and reduced environmental impact in terms of working fluids and fuels.

The above figures assume that a large part of the waste input is recycled.

Hydrogen obtained by electrolysis can be used either for improving the performances of the digester or can be stored for sustainable mobility of park service vehicles.

A minimum size for this plant is 3-5000 t/year that may be achieved collecting local waste within and around the park.

Technologies based on CO₂ segregation will be used for all the parts in order to reduce emissions of the energy recovery system.

The above results are referred to the option that includes all the four blocks above defined.

Indicators of progress:

- Definition of a set of local characteristics for the energy recovery system;
- identification of best technologies for each single block of the plant;
 - Completed design of the prototype architecture;
- Analysis of energy recovery share in natural parks;
- Analysis of figures of merits (efficiency, reliability) with respect to actual integrated cycle;

ACTION 4: TRAINING for the definition of Policies for sustainable waste management in natural parks

Description

The action addresses the need to update the existing knowledge of environmental waste related problems and possible solutions. The action will thus address this need for better information acting at two levels: on the one side addressing the more technical needs of policymakers / on the other hand addressing the needs of the press that requires a constant update on existing potentials environmental and potential of of the waste recycling/recovery process.

The action aims at structuring a set of tools addressed to policy makers and experts supporting them in being constantly updated on possible solutions which are eco compatible and allow for energy savings. The action will guarantee the sharing of the project positive results with policy makers and environmental related experts through the adoption of different tools including:

- 4.1 The creation of an archive: Existing studies recorded and archived in the Environmental Section of the University Library – mediateca - UNIMORE will be updated and the archived will benefit from the analysis conducted as Action 2.
- 4.2 The creation of a training course on the integrated waste cycle addressed to public administrations
- 4.3 The establishment and creation of an environmental journalism course
- 4.4 The definition of a final conference to be implemented with the collaboration of Università Verde
- 4.5 The definition of a scientific communication plan to be implemented with the collaboration of specific environmental related web TV and with the university e-learning centre.

Methods employed

Action 4.1 will be implemented following the research and the results conducted as Activity 2. All existing studies and on going practices along with all relevant information will be physically and electronically gathered in one specific section of the University library contributing to the enrichment of the library special section dedicated to Environmental sustainability. It will be an on-line and physical archive specifically presented and destined to policy makers and sector experts.

Action 4.2 will be implemented by University of Modena and Reggio Emilia through the creation of training curricula and training material on the integrated waste management cycle targeted specifically to public administrators and policy makers. . The training will be structured as a cycle of 6 lessons divided in two specific expert interventions.

The course will be structured as e-learning or blended e-learning (including both classes to be held in Reggio and online tools and training / teaching material).

Action 4.3 will be structured as a short journalistic course specifically focused on environmental aspects – the course will be implemented with the collaboration of the review Modus Vivendi (<http://www.modusvivendi.it/>);

Action 4.4. will be based on the creation of one final conference in the form of a lectio magistralis and 4 workshops to be held parallel following the initial main lecture. The conference specifically will be dedicated to environmental communication and namely on the issue of waste. The conference will be arranged and organized with the collaboration of relevant stakeholders at the national level. Important collaboration will be pursued seeking the collaboration of Fondazione Università Verde <http://www.universitaverde.it/> .

Action 4.5 the scientific communication plan will include the establishment of new cooperation and partnership with relevant medias in order to reach the widest possible public with environmental and specifically waste related special issues and in depth reports / reviews

This will be done seeking the collaboration of the E-learning centre of the University of Modena and Reggio Emilia (<http://tv.unimore.it>), of Ecoradio <http://www.ecoradio.it>, of Università Verde www.universitaverde.it, of Eco Tv <http://www.ecotv.it/> , along with other relevant regional and local web sites / tvs and radios. The aim will be to broadcast the project events (the conference and other research actions) and issue special reports based on the project results highlighting the project outcomes, thus disseminating the project outcome raising the awareness of energy recovery based on waste among citizens at large.

Constraints and assumptions

The full collaboration of media is assumed. The partnership has strong contacts with the proposed means of communication especially with Università verde, anyhow the negotiation with these organization may require time. The communication seeks the collaboration of other partners besides the University and municipality itself. The partnership will exploit its contacts and networks in order to guarantee the best coverage of the dissemination of project results. The University is highly interested in developing specific courses directed to policy makers, in doing so it will work closely with the distance learning centre, the aim would be to create a long distance training module, if the creation and effective participation to a long distance training scheme will prove not to be effective the project will eventually study a blended system which will combine both long distance training and in class lessons.

Beneficiary responsible for implementation:

University of Modena and Reggio Emilia- University Library

Expected results (quantitative information when possible):

- Update of the waste related section of the archive (physical and web) in the University of Modena and Reggio Emilia (UNIMORE) library
- Training course for policy makers
- Journalist course
- One final conference
- One communication plan (including at least 1 broadcasting of the conference and one specific special on the project outcome)

Indicators of progress:

n. policy makers involved in the training course
relevance of speakers invited to intervene in the training course
n. new articles and relevant pieces of information added to the archive
Conference attendance
n. networks broadcasting the conference event
n. networks broadcasting the conference

ACTION 5 Local application by Parco Nazionale delle 5 terre:

Description

Parco nazionale delle 5 terre is a beautiful location, whose value is witnessed by the number of visitors, that is about 2 millions every year. More than 70% is formed by foreign tourists, especially from USA, Australia, France, Canada and Germany.

The area of the park is populated by 4231 inhabitants distributed in the following way: 1.701 inhabitants in Riomaggiore Municipality, 1.535 inhabitants in Monterosso al Mare Municipality and 995 inhabitants in Vernazza Municipality.

The inhabitants of Cinque Terre and the responsible for park administration are strongly committed to recycling issues and to waste management. In fact, despite the harsh environmental conditions that makes car and truck journey difficult inside the park a pilot recycling system was installed by the single municipalities. Underground laying of the bins was possible only in some areas of Monterosso. For the other villages small and numerous "ecologic points" were preferred.

Visitors are encouraged to contribute to the recycling process thanks to the nice, small bins for the collection of plastic, paper and glass, placed in the most crowded areas (such as railway stations or the busiest paths).

Hence the action will be devoted to two main issues: (1) improve the waste management and recycling system of Parco Nazionale delle 5 terre in order to address its peculiar territorial features, (2) increase the awareness of Italian (and European) citizens about the potential advantages of a correct waste management and recycling system.

Hence the purpose of this action will be to spread the consciousness among administrators of natural reserves and parks on the issue of selective waste and sustainable management of the waste cycle. Moreover, a scaled demonstration plant will be set up that will show and monitor potential in terms of sustainability and economic impact of waste recycling/ recovery in natural parks.

The action will be implemented through the following actions: Action 5.1 opening of a green point; Action 5.2 adoption of the identified BP and adaptation of the practice to the territory of Parco Nazionale delle Cinque Terre, Action 5.3 communication event within the park premises; Action 5.4 definition of a virtual tour of the park specifically focused on the selective waste management.

Methods employed

Activity 5.1 Opening of a greenpoint (both a virtual point and a physical infrastructure) in the park. The green point info center aims at becoming an info point focused specifically on sustainable tourism mainly on the sustainable waste management in parks and protected reserves /areas. This action will be implemented in collaboration with the Italian Touring Club, and with the R²¹ networks

Activity 5.2 the implementation of this Action requires adaptation of existing best practices (identified through action 2) to the situation experienced by the Parco Nazionale delle Cinque Terre. In trying to adapt the BP at the local level the local park administrators will be supported in identifying in each BP the critical success factors which have proved to have a positive impact not being directly influenced by the existing culture and geographical context (peculiar characteristics of the area where the practice has produced positive results). Policy makers and Administrators will be invited to participate to the training course implemented through activity 4. In selecting the BPs Parco delle 5 Terre will try to adapt the successful experiences implemented in natural parks and protected reserve.

Activity 5.3 preparation of the final event to be implemented in the park specifically in the didactic centre of Torre Guardiola and or within the premises of Santuario di Montenero along with sustainable field visit to the Sanctuary of Cetacea (in collaboration with the Environmental Sustainability Project – implemented by the Media library – University library of Modena and Reggio Emilia):

Activity 5.4 definition of a virtual tour of the park specifically focused on the selective waste management.

Constraints and assumptions:

The main constraints are linked to the fulfilment of all the administrative procedures required by the local and national administration. The collaboration of both the Italian Touring Club along with the R21 network will be essential for the successful implementation of the action. The greenpoint aims at becoming one pilot experimental area which can be looked upon by other Italian parks and protected natural areas or reserves in trying to adopt sustainable selective waste management.

Beneficiary responsible for implementation:

Parco nazionale delle 5 terre

Expected results (quantitative information when possible):

Design and activation of a green point, set-up according to the number of visitors.

Creation of one info centre.

Adoption of sustainable waste management practices in natural parks through the creation of one pilot experience and one communication centre.

Creation of a new offer of sustainable tours linked to the waste management and recycling system.

Energy savings, CO₂ savings projected from monitoring of the scaled demonstrator.

Indicators of progress:

- n. of administrative passages for the approval of the new selective waste collection and management process
- budget dedicated to selective waste communication campaigns
- n. of visitors accessing the greenpoint
- n. of guided visits to the sustainable waste management tours
- tuning of the green point according to the project results and to the number of visitors.
- % increase in the waste selection management actions implemented in the park

ACTIVITY 6 Local Application by Provincia di Cosenza

Description (what, how, where and when):

The Region Calabria with the Council of Minister President's Decree of September the 12th 1997 declared the state of emergency for social-economic environmental crisis in the sphere of urban and solid waste management, that cannot be managed with ordinary administration. Because of the emergency declaration, with the Law n. 225/92 the President of Calabrian Regional Council has been appointed as commissioner delegated.

Since, 2002, Cosenza's Provincial Administration, with Provincial Council Decision n° 410 of October the 15th started up, the procedural course for the constitution of the Provincial Observatory on waste, while with Provincial Council Decision n° 14 of april the 6th 2004 has been approved the Observatory Regulation that has the following aims:

- contributes to analysis strategies definition as well as monitoring and supporting the departmental planning.
- connects the different subjects that, with different role, are involved in waste management.
- promotes eco-friendly behaviours.
- keeps in touch with all the subjects interested on the project (citizens, economical partners etc).
- constitutes the Institutional committee.
- constitutes the technical committee.

The provincial observatory made some data analysis that led to a general report delivered in 2007. The total production of urban waste for 2006 amounted at 333.691 tons instead of 332.726 produced in 2005. The share of differentiated waste is about 14,19% instead of 13,97% of the year before. Moreover, the waste production increased of 1,5% in countertrend with waste quantity reduction principle indicated by national law. The differentiated collection percentage, even if is increasing, is still far from the minimum aim of 35% indicated for 2006 by art. 205 of Legislative Decree. n.152/06.

The project RELS would be a key tool in order to realize a best practice of waste management and to guarantee environmental economic and social sustainability.

The object of the action 6 is the application of the "energy recovery from waste" system by the Cosenza's Provincial Administration following an experimental action in Sila National Park area.

Sila National Park is a beautiful place that needs to be discovered in all of its areas, with a lot of striking paths and fabulous landscapes.

Mountains and wonder valleys, a great variety flora's and wildlife great variety create a heritage of biodiversity that must be beloved and protected.

The Park safeguards the natural area that includes *Sila Piccola, Sila Grande e Sila Greca*, situated in 21 Municipalities belonging to Cosenza, Crotona and Catanzaro's provincial territory; the above mentioned area goes through 73.695 ha that sets the Park to the 9th place of the National Parks Classification.

According to *XIII Rapporto sul turismo italiano, 2004* the Park is a very precious heritage that attracts a large number of visitors increased during the last years until 2008, when has been detected a number of visitors amounting to 2.400.365: 363.165 can be classified as presences in hotels while 2.037.200 as excursionists. Another important data extrapolated from the Report is the following one: the Park is settled at the 10th place of the National Parks Classification for number of presences which amounts to 78,5% for ha¹.

Another Study on this matters underlined that the tourist potential flows in the Park area can be estimated in this way: 1.107.495 as presences in hotels, 2.835.187 as excursionists and 3.385.136 as holiday homes owners for a total amount of 7.327.818.²

¹ Source: *XIII Rapporto sul Turismo Italiano, 2004*.

² Source: *Osservatorio Turistico della Regione Calabria, 2004*.

In particular, one of the Park's most favourite paths is the Natural Reserve *I Giganti di Fallistro*, visited, during the last years, more or less by 20 thousands people: the 75% came from other Italian provinces, a 17% from Cosenza's territory and an 8% from abroad.

Visitors preferred kind of holiday is the "short one" repeated very often during the year.

Going back to "Action 6" needs to be underlined that a particular attention will be given to the analysis of local community capability, concerning the policy strategies adoption together with new technology's proposals. Specific actions will be guaranteed with the support of technical working groups as well as other partners that already developed/experimented this kind of technology.

Specifically, Action 6 aims at promoting the adoption of sustainable waste management practices all over Cosenza province; this aim will be reached introducing, first of all, the project as "pilot one" in national parks whose results will be disseminated to other municipal areas of the same region.

The activities foreseen in this action are:

6.1 Capacity building measures; 6.2 study and local adaptation of existing policies to the territorial reality of Cosenza (action to be conducted following the implementation of the BP analysis – activity 2 and the training activity 4); 6.3 definition of a pilot plant to be located and used in the policy implementation in Cosenza (action realized in cooperation of Universty of Modena and Reggio Emilia- DISMI following the sperimentation of activity 3); 6.4 implementation of recycling communication strategy.

Methods employed

The first activity, cross-sectional throughout the whole action, will guarantee the knowledge and proficiency required by the local team to develop the waste recycling effective policies along with the adoption of energy recovery from waste technologies.

Activity 6.2 requires adaptation of existing best practices to the situation experienced by the city of Cosenza: in trying to adapt the BP at the local level the local policy makers will be supported in identifying in each BP the critical success factors which have proved to have a poitive impact not being directly influenced by the existing culture and geographical context. Policy makers will be invited to participate to the training course implemented through activity 4.

Activity 6.3 foresees a close relation/collaboration with UNIMORE. UNIMORE will collaborate with Cosenza in defining a pilot experience for the adoption of the experimented technology and defined policy. The city of Cosenza will implement all the administrative and technical procedures in order to adopt the existing technology. The university will support Cosenza in the implementation of the policy and dimensioning the equipment required for the treatment of the collected waste. The University will furthermore conduct 2 audits to monitor the development of the system, to detect and solve criticalities linked with the general structure of the system (to be taken into account in the evaluation action) and with the process of local implementation. All costs for the creation and purchase of the equipment will be paid for by the province of Cosenza.

Activity 6.4 the activity includes communication actions aiming to reduce the production of waste and prevent the non conscious waste management (reaching the goal of increasing Selective Collection Rates) : this includes the adoption of relevant actions mapped during activity 2 and activity 4 specifically actions such as "100 kg less" (which has been implemented along with the association ACR+) - action implemented in year 2006 based on a European campaign. This campaign specifically has defined communication actions aiming at preventing the flux of 4 different kind of waste. Defining 4 categories of waste which can easily be identified in urban waste (1. humid waste ; 2. paper waste; 3. light packaging; 4. large and bulky waste) the communication actions aim at raising the awareness of consumers on the potentials of these categories of waste favoring their selective recycling thus the possibility of having energy production linked to the adoption of proper selective waste collection.

Constraints and assumptions

The action assumes the possibility by the administration of Cosenza to implement actions at two levels: implementation of a policy based on communication and awareness raising

campaigns; adoption of equipment for selective waste collection and management along with equipment for the energetic recovery stemming from selected waste.

Beneficiary responsible for implementation:

Province of Cosenza

Expected results (quantitative information when possible):

- Definition and adoption by the administration of a complex selective waste collection policy
- Implementation of one selective waste awareness campaign.
- Realization of a prototype plant for energy recovery and recycling from waste.
- Adoption of the Waste energy recovery mechanisms on an experimental base
- Energy saving, CO₂ savings. Comparison between expected and actual results.

Indicators of progress:

- n. of administrative passages for the approval of the new selective waste collection and management process.
- budget dedicated to selective waste communication campaigns.
- budget invested in the purchase of selective waste equipment and experimental machines.
- km² of the surface where the action is implemented / number of inhabitants involved in the pilot experience of selective waste management and energetic recovery from waste.
- size of the prototype demonstrator.
- Periodic tracking of the increase of percentage of waste recycled or used for energy recovery system in the Province of Cosenza.

ACTION 7: Dissemination

Description

The project outcomes will be spread and disclosed to the European community by means of a wide set of events and publications. The objective of this activity is to disseminate the results of the project locally, nationally and within Europe. The dissemination action aims to inform and involve the main stakeholder groups on the project objectives and development (in itinere) and results (at the end of the project). In order to achieve the best effects the development of this action will be supported by experts to be individuated as subcontractors.

Main stakeholders/targets of the dissemination can be classify:

Internal to the partners: Politicians, managers and technicians of the departments involved in the project, all other managers and technicians.

Local communities: Citizens, companies, other local authorities.

Institutions: Regional, National and European Institutions interested in developing a standard system to account greenhouse emissions and contribute to the UE goals concerning energy efficiency and climate change.

Other local authorities and Institutions which have already developed similar national or international projects to promote strong relationship and networking.

For a more effective communication, public sharing and ample diffusion of all documents at the intermediary level and of all final documents, will be forecasted. Specific actions aiming at collecting the project results (manual on collected Best practices) will be implemented

The activities foreseen in this action are:

7.1 Dissemination plan; 7.2 BP manual production; 7.3 web site creation ; 7.4 Scientific publication; 7.5 After Life Communication Plan.

Methods employed:

Activity 7.1 A dissemination plan will be realized at the same time of the first activity. The purpose of the dissemination plan is to provide an overall framework for managing and coordinating the wide variety of communications that will directly or indirectly take place as part of the program (specifically by the partners). It addresses communicators, audiences, messages, communication channels, feedback mechanisms and message timing. The dissemination plan will detail the communicators, audiences, messages, communication channels, feedback mechanisms and timing for each communications event.

At the beginning of the implementation phase notice boards illustrating the project will be erected in the location where the activities are implemented and they will be visible to the public; notice boards will be maintained for the whole duration of the project.

At the end of the project a Layman's report will be prepared in paper and electronic format. The report will be produced in English and Italian and it will describe project actions, objectives and results for a general public. About 100 paper copies will be printed.

Activity 7.2 drafting, editing and publication of a Best Practices Manual on waste cycle management (written by Pinuccia Montanari and Emanuele Burgin): the manual will be addressed to public administrators along with all experts working in public utilities companies being in charge of defining waste management programs and operational action plans. The Manual will be structured as an update of the existing ANPA Manual titled "La raccolta Differenziata – aspetti progettuali e gestionali, Strumenti e Metodi, 1999" ["The waste sorting – project and management aspects, tools and methods] containing the following 5 sections :

1. the prevention and reduction within the waste integrated management;
2. the selective waste collection within the waste cycle
3. definition of the collection model
4. how to start the selective collection system (starting new collection services)
5. how to manage the services

In order to make the manual truly useful especially for policy makers and the beneficiaries it will be based on concrete existing experiences and examples stemming from both national and international best practices, specifically highlighting the strategic approaches linked to all selected practices.

Activity 7.3 The official website of the project will be online within the end of June 2010. The web site will contain all the project documents. Besides all the general project information, and specific pilot action data (number of users involved, territorial context, starting date status...) the web site will also contain all relevant documents (both administrative documents such as deliberations, financial plans, administration reports, tendering documents, technical projects, operational plans , protocols , standard formats...) along with the explanation of each document. The website will include a section for the exchange of information among the partners. The website will be constantly updated regarding the project progress and activities.

The website foresees the creation of an on line web info point on the project and on the BP related to the management of the waste cycle.

The web site will be used as a virtual info point to the benefit of all users / visitors both linked to the Parco 5 Terre, the University and Comune di Reggio Emilia actions for training local authorities. It will contain information directed to sector expert and to local administrators. These target groups will be invited to link the project web site to their own web url. The citizens at large will be reached by linking the web site to the network of all eco sportelli (eco portals).

The web site will be structured in 4 main areas which will gather and clusterize the different experiences. Each section will then contain different sub categories.

- 1) prevention and reductions within the integrated waste cycle
 - a. actions at the local level
- 2) the definition of the collection mechanisms
 - b. choosing the collection method
 - c. service standards and costs the social impact of the collection
 - d. the linked tariffs and costing mechanisms
 - e. the roles plaid by the different actors (ATO , managing authority, CONAI ...)
- 3) Waste Recovery & Energy recovery mechanisms
 - a. Available mechanisms
 - b. New approaches introduced by the project
- 4) Report of demonstrators results (addressing new collection methods/ energy recovery systems tailored for natural parks)
 - a. technical report
 - b. how to manage public approval and authorization
 - c. how to develop a proper communication plan
- 5) The control mechanisms and tools
 - c. the satisfaction surveys
 - d. the implementation of the quality principles
 - e. indicators and parameters to measure quality
 - f. Service Charter
 - g. Tariff Regulation
 - h. Service procedural rules

Activity 7.4 Scientific publications detailing the chosen integrated energy recovery systems and the performances of the demonstration project realized at Provincia di Cosenza.

Constraints and assumptions:

The main constraints of this task are the predisposition and activation in project's first months of the web site, the constant data uploading, the involvement of employees, the capacity to advertise and communicate the existence of the web site .

Beneficiary responsible for implementation:

Comune di Reggio Emilia with the collaboration of UNIMORE

Expected results (quantitative information when possible):

A progressive increase in the awareness of selective waste collection and management along with the progressive dissemination of existing good practices in terms of waste selection and energy recovery from waste, pointing out the role of local authorities and local communities in reaching sustainable waste management goals. .

In quantitative terms the results could be summarised as follows:

- 1000 local authorities are planned to be contacted to disseminate the BP analysis
- 1000 manual copies distributed in electronic version
- 6600 brochures and leaflets will be distributed and mailed according to pre-prepared mailing list and distributed at the info point;
- at least 3 contacts with local and European institutions initiated and actively maintained (EU bodies and other EU cities linked to the territory of the partners)
- contacts with at least 3 major sector specific European network (among them: ICLEI / ACR+ /COORDINAMENTO NAZIONALE AGENDE21) to vehicle information
- During the project time span 6 contacts for regular updates with the Italian Environmental Ministry and competent regional authorities
- 2000 access to the web site in the last year for project information
- Participation to at least 3 National /European waste and environmental related seminars and conferences presenting the project results

Indicators of progress:

The progress indicators of the results of the task are bound to communication material, including: N° of material products, N° of manual copies distributed, N° of inscriptions to the newsletter, N° of access to the WEB site, N° of documents downloaded, N° of requests received, , N° of participants, N° of organisations which will adopt the standards, N° of papers published about the project.

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DELIVERABLE PRODUCTS OF THE PROJECT

Name of the Deliverable	Code of the associated action	Deadline
Detailed work plan	A1	Feb 2010
Partners contract	A1	Feb 2010
Operational Plan	A1	March 2010
Administrative Operating Manual	A1	March 2010
kick off meeting Minutes	A1	April 2010
Report on the recycling calculation methods harmonization needs	A2	Nov 2010
Database on waste recycling calculation methods	A2	April 2011
Paper on state-of-the-art solutions seeking for those avoiding the use of fossil fuels and toxic pollutants.	A3	March 2011
Design of energy recovery dedicated to natural parks	A3	July 2010
scaled prototype plant at Parco 5 terre	A3	Sept 2011
Design of a energy recovery and recycling system for Provincia di Cosenza	A3	Sept 2011
archive update	A4	May2011
training modules	A4	Sept 2011
training modules for journalist course	A4	Oct 2011
Scientific production Communication plan	A4	Sept 2012
final conference	A4	Sept 2012
Greenpoint info web point and physical stand	A5	Jan 2012
Tutorial/seminar at parco 5 terre	A5	Jan 2012
adaptation of BP to be implemented in Parco delle 5 Terre	A5	Oct 2011
Adaptation of BP to be implemented in Provincia di	A6	Oct 2011

Cosenza		
Cosenza Communication Plan	A6	Feb 2012
Dissemination plan;	A7	July 2011
BP manual production;	A7	Sept 2012
web site creation ;	A7	June 2010
Scientific publications	A7	Sept Oct 2012
After Life Communication Plan	A7	Nov 2012

MILESTONES OF THE PROJECT

Name of the Milestone	Code of the associated action	Deadline
Sign of the contract	A1	Feb 2010
Approval of operational manual by SC	A1	March 2010
Kick-off meeting	A1	March 2010
Realization and erection of notice boards	A7	April 2010
Update of Rapporto Rifiuti and harmonization on calculation methods	A2	Sept 2010
Analysis of state of the art technologies seeking solutions to use alternative fuels	A3	Sept 2010
Review of existing Regional regulation and European practices on selective Waste management	A2	Nov 2010
Investigation on integration between traditional technologies and solar energy tech.	A3	Nov 2010
Start of prototype production of new technologies	A3	Apr 2011
End of prototype production	A3	Sept 2010
Update of existing archive on waste related sustainable practices	A4	Apr 2011
Training course modules prepared and approved by SC	A4	Sept 2011
Adaptation of existing BP to Parco 5 Terre	A5	Oct 2011

Adaptation of existing BP to Cosenza	A6	Sept 2011
Active Internet web site of the project release	A7	June 2010
Definition of the equipment prototype for Cosenza communication strategy and awareness campaigns in Cosenza	A6	Nov 2011
Journaliste course	A4	Dec 2011
Green point in Parco 5 Terre	A5	Jan 2012
Conference in parco 5 terre	A5	Jan 2012
Environmental related TV communication plan	A4	Feb 2012
Scientific publications	A7	May 2012
Manual on BP	A7	Sept 2012
Final Conference in RE	A4	Oct 2012
After life comm. Plan approved by last SC	A7	Dec 2012
Realization and launch of the Layman's report	A7	Dec 2012

ACTIVITY REPORTS FORESEEN

Please indicate the deadlines for the following reports:

- Inception Report (to be delivered within 9 months after the project start);
- Progress Reports n°1, n°2 etc. (if any; to ensure that the delay between consecutive reports does not exceed 18 months);
- Mid-term Report with payment request (only for project longer than 24 months)
- Final Report with payment request

Type of report	Deadline
Inception Report	31/03/10
First progress report	31/07/10
Second progress report	30/11/10
Third progress report	31/03/10
Mid-term Report with payment request	1/07/2011
Fourth progress report	30/11/2011
Fifth progress report	31/03/2012
Sixth progress report	30/06/2012
Final Report	31/12/2012

