PROFORBIOMED TECHNICAL DESCRIPTION

OBJECTIVES OF THE PROJECT:

GENERAL OBJECTIVE

To promote renewable energies in Mediterranean regions by developing an integrated strategy for the use of the forest biomass as a renewable energy source, recovering the forest biomass potential, developing the fundamental technical and legal aspects and promoting the use of forestry biomass for energy through the involvement of the key stakeholders in a forestry biomass production chain that take into account sustainability and compatibility with other uses of Mediterranean forest.

SPECIFIC OBJECTIVES

The specific objectives are:

- To setup integrated development strategies for renewable energies, including technical, logistic and environmental aspects of the biomass production chains that achieve a sustainable Management planning model of the forests in the MED area.

- To promote renewable energies as an opportunity for rural areas through the dynamization of the forestry value chain, creating jobs and developing industries linked to the forestry environment

- To promote intelligent energy management systems on local and regional level, adapting the concept of smart grids to biomass production chains, assuring a more secure and efficient supply of energy with mobilisation of forest biomass.

- To identify and involve all relevant stakeholders related to the biomass forestry chain, developing a multi-level network that integrates and supports capacity building of public and private actors.

- To provide policy makers with the tools needed to design sustainable energy models by means of adequate and realistic estimations of potential productions, best final uses and optimization of the value chain.

EXPECTED RESULTS

- The overall result expected is the development of an integrated strategy for the use of the forest biomass as a renewable energy source that allows recovering the forest biomass potential develops the fundamental technical and legal aspects and increases the use of forestry biomass for energy through the involvement of the key stakeholders in a forestry biomass production chain. This will help forest owners to get an income in their forests through the biomass production chain so that they can afford the necessary forest management to in Mediterranean forests, leading to the

improvement of the Management of forest areas, reducing risks (fires, pest, abandonment...) and improving the conservation status. Finally, it will boost investments in biomass production by demonstrating modern technologies and new opportunities along forest biomass production chains and will contribute towards the increase of energy from renewable sources and consequently to guarantee more secure supply of energy with mobilisation of wood biomass from forests.

The most significant quantitative results are:

Identification of problems, current gaps and opportunities for the development of the forestry biomass chain in the MED area.

Assessment of the forest biomass available for its mobilization for energy production in a social, economic and environmental sustainable way in the partners regions.

Development of clusters/networks of key public and private actors in, at least, 10 regions MED.

Setting up of strategic orientations to implement policies for the development of renewable energies in Mediterranean regions, including the implementation of the smart grids concept in the Forestry biomass chain in at least 10 Mediterranean regions

Development and transfer of Guidelines and operational recommendations to key stakeholders for the implementation of a forest biomass chain in the MED area and the development of clusters.

Development of agreements ("Specific collaboration agreement for the promotion of forest biomass with energetic purposes") with key private and public actors, setting the basis for further collaboration on the development of a forest biomass chain (at local/regional level, at least one per partner, at least 19 agreements). covering at least 10% of the area involved in the project.

Development of a model of public support to sustainable forest management and biomass production in private forests and identification of financing mechanisms for public and private investments in the MED areas.

Development of pilot projects in partners regions covering 4 axis and 13 different issues related to the forest biomass chain for energetic purposes.

OUTPUTS AND DELIVERABLES

WP1

OUTPUTS

7 steering group meetings

2 project evaluation

DELIVERABLES

6 technical and financial reports (including auditing reports)

7 steering meeting reports

2 evaluation reports (mid-project and final evaluation)

WP2

OUTPUTS

16 major events (at least 2 in each country and a final event in Murcia) and 40 workshops/seminars with stakeholders (at least 2 for partner) that includes private and public actors.

A web page and mailing list for the dissemination of the project activities, materials and results.

A communication plan for the project.

A designed and developed awareness rising campaign.

Articles in general and specialized MEDIA.

DELIVERABLES

Quarterly Newsletter in, at least, three languages, in electronic format (WP 2)

Articles in general and specialized MEDIA (WP 2)

Initial and final Brochure (WP 2)

DVD (WP 2)

13 Technical guides (1 covering the main outputs of the project+ 1 for each pilot experience + 1 for best practices and guide for implementation and 1 focused on transferring technologies and tools for the implementation)

Report on tools, methodology and results of the awareness raising campaign, with recommendations to step forward

Reports on the events developed.

WP3

OUTPUTS

A set of proposal of standardized practices and policies (affecting at least 5 key policies (industry, energy, forests, agriculture and environment) in order to develop the forest biomass chain in the MED area.

Setting of clusters involving key actors (public and private) in the rural areas (at least 2 in each country) that allow the building up durable structures to foster the communication and joint action of public and private stakeholders.

Agreements with public administrations, setting the basis for further collaboration on the development of a forest biomass chain (at local/regional level, at least one per partner, at least 19 agreements).

Agreements ("Specific collaboration agreement for the promotion of forest biomass with energetic purposes") with private forest owners and associations covering at least 10% of the area involved in the project.

Development of a database with at least 1000 data from key actors to be used as a planning tool for an active forest management.

Identification of financing mechanisms for public and private investments and development of a model of public support to sustainable forest management and biomass production in private forests

DELIVERABLES

Poster with information about the project.

Partnerships agreement models for private and public actors

Guide: Guidelines and operational recommendations to key stakeholders for the implementation of a forest biomass chain in the MED area and the development of clusters.

Model on public support scheme and financing opportunities for public and private investments in forest biomass chain.

WP4

OUTPUTS

Capitalization of already developed initiatives in the forest biomass chain issues.

Identification of problems, current gaps and opportunities for the development of the forestry biomass chain.

Development of guidelines and operational recommendations to key stakeholders to fill the current gaps identified.

Development of demonstration and operational pilot experiences in 2 axis:

Biomass production (7 different issues)

Biomass power plants: supply and feasibility (2 issues)

These 9 different pilot experiences will be developed in the different partner's areas in order to involve key stakeholders and promote the development of forest biomass chains, analyzing technical, social and environmental aspects, implementing real solutions and providing operational recommendations for public and private stakeholders..

Assessment of the forest biomass available for its mobilization for energy production in a social, economic and environmental sustainable way.

Identification of MED areas where transferring and replicating pilot experiences.

DELIVERABLES

"Situation Report on forest biomass use" The situation reports will be a background document for estimations of possibilities for mobilization of additional forest biomass on sustainable way as a contribution to overall renewable energy sources.

9 reports of the pilot experiences, including results, opportunities and recommendations for transferring the experiences and a guide to setp forward.

WP5

OUTPUTS

Development of consultation processes (workshops, focus groups, meetings…) with stakeholders for the development of clusters and

Evaluation of the economic impact of the deployment of the wood bioenergy activity in each region

Building up of clusters in partners regions (at least 10)

Development of demonstration and operational pilot experiences in 2 axis:

Development of the economic and social network for energetic use of the forestry biomass.

Communication and supporting tools for stakeholders, including:

- Office for Promoting the Energy Recovery from Biomass of Forestry and Rural residues
- Creation of a Web portal
- Application on field of best practices of sustainable forest management

DELIVERABLES

Strategic report on "Renewable Energy as an opportunity for the MEd regions", setting strategic orientations to implement policies for the development of renewable energies in Mediterranean regions

WP6

OUTPUTS

Implementation of the smart grids concept in the Forestry biomass chain in at least 10 Mediterranean regions

DELIVERABLES

Guide: improvement of the logistic related to the supply of biomass to the Power plants at local and regional scale using smartgrids concepts.

WP 1: PROJECT COORDINATION

The overall objective of this work package is to ensure that the project is developed according to the planned activities and goes towards the accomplishment of the expected results. It will coordinate the individual work of each partner assuring that they develop it efficiently and that receive support and enough information to develop accurately the project activities. Its specific objectives will be:

- To maintain the team enthusiasm and the commitment of the partners to the project.
- To build up agreements among the partners setting agreements on common procedures for communication, coordination, decision making, meetings and workshops organization and operative procedures for timely and accurate reporting to the European Commission.
- To ensure that the research activities and implementation of the planed interventions progresses according to the work packages objectives and time plan;
- To ensure that work packages deliverables are produced on time according to the deadlines.

The complexity of the strategic projects makes necessary to build up a strong management structure that allows running the project in a efficient way. PROFORBIOMED project has designed a structure that supports all the activities of the project:

The project global coordination, under the responsibility of the Lead partner, the Directorate-General for Natural Heritage and Biodiversity, Regional Ministry of Agriculture and Water, Region of Murcia. It will be the main responsible of the management of the project and the responsible of the accomplishment of all administrative, financial and reporting tasks.

The project leader will have the main role of monitoring the progress of the projects activities, to support the partnership in carrying out the different activities and the day to day necessary activities for implementation of the project: daily management and communication with the partners and with the JTS, dinamization of the partnership, planning of the coordination meetings and monitoring of the project. It includes also the administrative and financial monitoring and the submission of reports to the JTS.

The National Coordinator (NC). A project with 20 partners in the project needs to develop specific structures to help the management activities. In this sense, PROFORBIOMED will implement the figure of NATIONAL COORDINATOR. It would be, as a support for the Lead partner, responsible for the monitoring of the project activities at NATIONAL level, being in close contact with the Lead partner and reporting to him. The functions would be:

- First step of the communication process among partners and Management structures of the project

- Responsible of gathering information in the reporting periods

- Supporting the work of WP Leaders in each country

- First assistance to partners in common problems regarding the project implementation

- Responsible of the organization of meetings in its country (that can be organized for other partners in the country)

- Responsible for the strengthen and monitoring of communication activities at national level

- Responsible for the communication with key actors (not included as partners in the project)

- To coordinate the first proposal of the economic development strategy (WP 5)

The Workpackage Coordinator (WPC). The coordinator of each workpackage will focus its coordination action in the monitoring of the activities, calendar, outputs and results of the workpackage, assisting partners in their development and to the Lead partner in its overall administration of the project.

The assumption of these roles (Lead partner, National coordinator or Workpackage leader) means also extra budget allocated to the partner responsible. Partners to be national or WP leaders need to have strong structures able to develop this task. Lead partner, together with the National leaders and WP leader, will develop specific management activities, which can include meetings and internal reports.

Project implementation will be monitored through quality control plan and will be discussed on project meetings. Steering committee and independent auditor will play an important role in monitoring the quality of project results and success in reaching our main target groups.

On the other hand, it is necessary to set a management structure where all the partners of the project can meet to discuss about the project issues and participate in the project management and decision processes. This structure is the Steering committee. It will be held in each partners meeting (twice a year) and will hold the discussions about the project. **The** project steering committee will be officially established at the first meeting and will be comprised of representatives of all partners**.** The main task of this group is to monitor the project implementation and performance indicators and to give support to Coordinator in achieving all envisaged results.

Finally, a qualitative assessment by an independent auditor at mid-term and at the end of the project will be implemented in order to assess and improve the project development and to set recommendations for future projects.

A set of qualitative and quantitative indicators will be developed to properly monitor and evaluate this WG.

WP 2 INFORMATION AND AWARENESS RISING

This work package has a horizontal impact on issues covered by the other work packages. It aims to raise awareness of populations and institutional actors on issues related to energy conservation and to disseminate the results of the project to these actors. It must be based on a comprehensive communication strategy as specified in part III c of the terms of reference. The work package 2 must be developed in close relation with the work package 3 on capitalization and promotion of project results.

To encourage consultation, exchange of information, involvement of the populations, associations, civil society in the definition of energy efficiency and renewable energy development strategies. To involve local and regional environment agencies (information, awareness raising)

To support educational projects for the population and for the youth. To promote in schools knowledge of the Mediterranean through issues related to energy efficiency and renewable energies. To support the implementation of educational platforms

To disseminate the results of the work packages to local and regional authorities and to other target groups

To achieve information and publicity activities as specified in the communication strategy of the project

The aim of WP2 is to disseminate the project results to all relevant users and to raise awareness of all the stakeholders involving the main regional actors in the project and reach to other actors beyond the partner regions and reaching the whole MED area. Each partner will promote the project among the stakeholders in its region and in nearby areas outside its region. These activities will be used as a promotion tool in the establishment of permanent structures (or “clusters of stakeholders”) that will assure the use of the project results. Finally, at European level, the partners and non partner structures that have a European scope will be responsible for the dissemination of the project activities and results. Additional efforts will be made to disseminate the project activities and results to professional and larger public trough articles and presentations on different fairs.

The first action of this WP is the building up of a communication strategy that include the key messages to communicate, definition of target audience (institutional bodies and key economic and social actors in the MED area) and the different levels of dissemination of information to develop, with different tools, messages and methodologies; It will be defined also a strategy for the Linkage and synergies with similar projects and international networks, in order to enhance the visibility and added-values on a transnational level.

The definition of the key target groups will be made in two phases:

First, each partner will have to define key target groups and stakeholders in its area of influence.

Then, and in coordination with partners and non partners structures with European Scope (ADD NAMES) key target groups at national, MED and European level will be defined.

There has been a previous work on identification of stakeholders at regional level and many key actors have been identified by project partners:

Local and regional Stakeholders:

- Farming cooperatives of the town.
- Forest owners, farmers and associations of private forest owners.
- Cooperative of services for farmers and forest owners.
- Public local authority.
- Natural parks managers and users.
- Citizens in general.
- Enterprises related to silviculture and forest management-forest based industry.
- Chamber of Commerce
- Forestry Department
- Companies that are active in energy from RES, especially biomass
- Local and Regional Energy agencies and research Centre for Renewable Resources (CRES)
- NGOs
- Universities
- Covenant of mayors
- Potential investors in biomass production chains
- biomass trading companies

General and specific tools will be developed to reach each key actor:

- Definition of the PROFORBIOMED logo and visual identity.

- Publications:

    - Publications in local and regional media.
    - Newsletters.
    - Articles in local, regional and internet sources, publications, conferences, etc.
    - Brochure presenting project aim and main activities.
    - Poster for the participation of the project in Programme MED events and other forum.
    - Project results leaflet and a DVD featuring the results of the project.
    - Capitalization books.

- Creation of a website with information about the project aim, progress and results, mainly in English and French but also in the languages of all partners (by including specific sections for every partner country. This section will contain also technical information about the forestry energetic chain in each region. It will contain also specific information of each partner. Especially, information announcing the forthcoming events will be available in respective national language

- Awareness rising campaigns, addressed to different stakeholders, aiming specifically to show the benefits of he biomass exploitation of forests and specific issues selected in each area.

- Events
    - Workshops at different stages of the project and at different levels with different stakeholders. These workshops are aimed to inform and gather information and to involve local and regional stakeholders in the project activities. It includes also workshops in national and international events related with the issues of the project.
    - Technical meetings and visits to the pilot projects.
    - Educational activities, working at local levels with schools.
    - Public final event or conference to diffuse project results to relevant target groups.

A set of qualitative and quantitative indicators will be developed to properly monitor and evaluate this WG such as structures affected, target groups, method of dissemination etc

WP 3 CAPITALISATION AND PROMOTION OF THE RESULTS OF THE PROJECT.

This work package aims to ensure the use of the project results and the implementation of long lasting measures triggered by the project activities. The work package 3 must be developed in close relation with the work package 2 on information and awareness actions.
To define the strategy and actions for the use of the results after the project is over
To set up agreements and political commitments with relevant decision makers and stakeholders for the implementation of results, after the end of the project
To identify financing mechanisms allowing new public and private investments
To set up, if relevant, permanent structure and define the scope, composition, financing in order to ensure the long lasting effect and the sustainability of the project results.

This work package is aimed to capitalize the results of the project and to ensure that the development of the forestry biomass chains is sustainable in the partner areas and go beyond them towards the whole MED area. To foster the biomass market there is a need for involve all the actors related to the forestry chain (public administration, research centre, forest owners, industry…) and implies the development of studies and methodologies of sustainable biomass production and extraction, technical and legal regulations and the development of joint structures of management of the forestry biomass chain. This work package will imply:

- Transnational capitalization and promotion of the results. These results will made up from activities in WP4, WP5 and WP6. In order to assure the best capitalization possible it is necessary to develop good monitoring of the activities of the project and specific work in the development of materials supporting the capitalization. To support this action, a group of significant experts (technical committee) will be set for the analysis of pilot projects and the proposal of standardized practices and policies. The main task of this group is to monitor the project implementation and performance indicators and to give support to Coordinator in achieving all envisaged results
  From the results of the actions included in the project, together with those from studies, it will be also developed a database. This will be used as a planning tool for an active forest management and it will establish criteria for sustainable management of forest biomass, especially aimed at forest owners.
- Setting up agreements and political commitments with relevant decision makers and stakeholders for the implementation of results at the end of the project. These agreements have three approaches:
  - Agreements and political commitments with the public administrations at local and regional levels. To prepare this action it is necessary to elaborate, on the basis of the project results (WP 4,5 and 6), drafts of regulation and planning actions in order to foster and regulate the use of woodland biomass, including not only the technical regulations and forest management strategies at local and regional level
  - Agreements with private forest owners and associations. The aim is to set voluntary agreements (“Specific collaboration agreement for the promotion of forestry biomass with energetic purposes”) with private owners so that they can receive support (technical and administrative, mainly from public administrations and biomass clusters). The aim is to establish the collaboration

system among the different stakeholders involved in forestry biomass uses, especially in private forests since most of forests in the Euromediterranean regions are private. This will help to develop more sustainable management plans that allow the biomass exploitation of forests, supporting the development of the biomass forestry chain. Thanks to this agreement, it will carry out involvement and participation strategies of the private sectors (landowners and companies) and will make possible also the development of new pilot experiences in private forest areas.

- Agreements and setting up of structures to dinamize the rural areas and the development of clusters. There is a need for building up durable structures that allow the communication and joint action of public and private stakeholders, which is actually the main gap in forest management nowadays. There are already established clusters that include private forest owners, regional administration, energy agencies and local councils that will facilitate the development of models of clusters to implement in the project. The goal of creating an extensive, sustainable and durable network will be pursued through the creation of vertical links between world of research, institutions and private entities and horizontal links between different European countries. The network will facilitate the exchange of best experience and Best Available Technology, the connection between research centers, institutions and private companies from different countries to encourage investment in this sector, data exchange and information, experiences, technologies, best practices and the realization of projects, feasibility studies with the aim to implement pilot projects in several European countries. These structures are designed to be permanent.
- Development of a model of public support to sustainable forest management and biomass production in private forests.

- Identifying financing mechanisms allowing new public and private investments. For this purpose the project will compile a database of financing opportunities at European, national, regional and local level for the implementation of biomass plants. On the other hand, and in collaboration with financing institutes, feasible financing schemes will be drafted.

A set of qualitative and quantitative indicators will be developed to properly monitor and evaluate this WG such as numbers of structures reached, number of dissemination events organized etc

WP 4 SETTING UP OF INTEGRATED STRATEGIES FOR THE DEVELOPMENT OF RENEWABLE ENERGIES.

Related to this context, the activities have to take into account the 'energy shortage', meaning the difficulty of part of the population to access sufficient energy resource in order to satisfy its basic needs. This aspect has to encourage promoting low-cost technical solutions and improve accessibility to energy efficiency solutions.
- The optional WP must promote solutions and pilot activities that highlight the potential and the resources of the related project area (natural resources, economic sectors, local economic potential...)
Furthermore:
- The optional WP must contain a strong operational and concrete aspect in using information on the efficiency and the cost-benefit of techniques and procedures identified. The objective is the long-term development of these procedures and techniques in a sector biased by important public aid.

The strategic project doesn't have a one-sector approach but gives central importance to the way the renewable energy sources are promoted (respect of environment, consensual approach, diversification of technologies sustainable and cost-efficient solutions...).
The partnership can focus to one or more of these energy sources according to the needs, priorities and competences within the area concerned. The key element is that the actions must be undertaken in areas where the partnership is likely to bring the highest added value to the project.
The objective of this work package is to provide support to local and regional authorities for the implementation of strategies for the development of renewable energy, taking into account environmental, social and economic constraints.
To identify from a number of representative case studies, the difficulties and bottlenecks faced by local and regional authorities in the development of renewable energies (technology, finance, skills, planning regulations, respect of environment, consultations, ...)
To set up working groups on the issues considered as priorities by the partners of the project in coordination with key players of the field of intervention (state services, specialised agencies, other professionals...)
To carry out analyses and provide operational recommendations for local and egional authorities susceptible to be disseminated and used by other actors of Mediterranean regions
Issues to be considered: integration of facilities and equipments (solar, wind energy, biomass) in the environment, including the consultation process with the population and the civil society; energy efficiency and profitability of renewable energy sources; development of renewable energy sources for isolated or fragile territories
To strengthen the knowledge and competences of administrative services and political bodies to improve information and decision making processes

The objective of this work package is to provide support to biomass producers, forest owners and forest based companies and to local and regional authorities for the implementation of strategies for the promotion of residual forestry biomass, taking into account environmental, social and economic constraints and providing technical and economical information to key

stakeholders (local and regional administration, forest owners and companies and energy actors).

To carry out this objective there will be three kinds of activities:

- Analysis of the current situation, problems and opportunities for the development of the forestry biomass chain.
- Development of pilot actions in the partner areas.
- Building up of guidelines and operational recommendations to key stakeholders to fill the current gaps identified.

This action is made up by three main activities:

- Analysis of the current situation and capitalization of already developed resources. These reports will help to identify current gaps, main barriers and possibilities for further development of wood biomass production chains. The situation reports will be a background document for estimations of possibilities for mobilization of additional forest biomass on sustainable way as a contribution to overall renewable energy sources. It will also include a list of main barriers for further development of forest biomass production chains. They will be developed in each area from a common template and will build up the report: “Situation Report on forest biomass use”. This report will also develop and analysis of the similarities and differences among the MED regions, in order to identify areas where the pilot experiences could be replicated or the results could be extrapolated

- Pilot actions to analysis technical, social and environmental aspects of forest biomass production, implementing real solutions and providing operational recommendations. Optimization of forest biomass production is an important aspect that influences the mobilization of forest biomass, especially from private forests. The Forestry Biomass use for energy causes positive effects for the environment and the society, including the improvement of the forest conditions to face fire and pest risks, and the direct job creation. On the other hand, it can entail negative impacts on issues like the nutrients cycle, flora and fauna, so an important issue on this action will be to analyze each one of those environmental affections in different pilot projects, and then later to define, implement and disseminate the main methodologies and measures to adopt to minimize these environmental effects.

- Building up a practical guidelines and operational recommendations to key stakeholders for sustainable forest biomass production, based in the two precedent activities. Special emphasis will be given on recommendations for mobilization of local/regional forest biomass resources.

DESCRIPTION OF TASKS IN EACH ACTIVITY:

Activity 1: Analysis of the current situation:

A) Each partner will prepare a: "Situation Report on forest biomass production and use" in its region. A common template will be prepared and reports will be available on the project's website. A minimum content of reports will be

   a) Short description of wood biomass market
   b) Description of wood biomass production chains from forests
   c) Socio-economic and other constrains
   d) Existing policy measures (subsidy schemes, environmental limitations ...
   e) Main barriers for further development

B) Main barriers for further development of wood biomass production chains in MED regions will be prepared, based on situation reports prepared by partners. This list will present a "red line" for pilot actions.

C) Overview on possibilities for mobilization of additional forest biomass in MED regions will be prepared, based on situation reports prepared by partners. This overview together with pilot actions will support local and regional authorities for the implementation of strategies for the development of wood biomass sector based on sustainable use of forest resources.

Activity 2 Pilot actions

Development of pilot experiences in the partner areas.

The aims of these pilot experiences are:

- To develop technical, logistic and environmental aspects of the biomass production in order to provide the technical knowledge needed in partner areas to mobilise unused forest biomass potentials, implementing real solutions and providing operational recommendations for a sustainable use of the forest biomass.
- To identify the difficulties and bottlenecks faced by local and regional authorities and private forest owners and to propose management solutions.
- To disseminate the project activities and involve key stakeholders in the project by supporting their participation in the activities as main actors.

Pilot projects include in their approach the identification of key actors in the issues related to the Project, the economic, social and environmental impact. On the other hand, PROFORBIOMED will go beyond the implementation of the pilot projects in order to apply the solutions/results achieved and prove their relevance and usefulness. This application can be made by developing local/regional regulations or plans from the results of the pilot projects, enlarging agreements or clusters developed in the pilot projects.

The aim of the Pilot projects to carry out is the development of a FOREST MANAGEMENT FRAMEWORK FOR THE DEVELOPMENT OF SUSTAINABLE FORESTRY BIOMASS PRODUCTION CHAINS.

In this pilot project the different steps that in forest biomass production chains will be developed in different areas and by different partners depending on their current status of development and necessities. This way the project can be benefited by the diverse experience of the partners and partners can go further in the development of the process according to their specific necessities.

Pilot projects include different activities that cover different key axis in the forest biomass chain and that will be developed in 4 axis, 2 in this WP and 2 in WP 5, in different areas:

1. Biomass production: technical, logistic, environmental aspects and tracing wood biomass origin.

2. Biomass power plants: supply and feasibility, addressing matching supply and demand side, security of supply and promotion of energy contracting model, where forest owners act as energy sellers.

Each axis has a lead partner that will support the development of the activities and will act as liaison agent between the WP coordinator and the partners in each pilot action.

Axis I: BIOMASS PRODUCTION.

In this axis the technical, logistic and environmental aspects of the biomass production will be developed in order to provide the technical knowledge needed in partner areas, filling the current gaps that hinder the development of this activity. This axis is made up by following activities:

4.1. Preparation of protocol for assessment of wood biomass potential, tested in pilot areas and presented to main stakeholders

In the first stage partners participating in this axis will select pilot region or area and the activities to develop among those presented here. The study areas will be selected in order to have different management strategies to compare and taking in to account suggestions from other partners in order to ensure that methods and results are transferable to other partner countries.

4.1.1. Assessment of the structural diversity of forest habitats.

This activity will gather and analyze information about the forest management, gathering information about current and old forest management plans and data derived from scientific researches accomplished in the study areas. In addition, some diversity parameters will be collected with field surveys and different attributes will be developed: variations in the growth phase, age (obtained by data on tree stands and by the ratio diameter/age calculated for each tree), number of trees per hectare, mature and old growth trees, presence of dead wood, basal area per hectare, mean diameter and its variation, correlation between volume and age, tree species composition.

4.1.2 Development of a Geo-Information System for the Potential Forestry Biomass Management:

This GIS application is essential for decision making processes related to forestry biomass management, specially the potential biomass production and the work planning, and it needs of three different basic components:

-Mapping of potential forestry biomass and relation to potential end-use

- Mapping of road infrastructure system

-Development of distant & cost application – relation maps for biomass logistic

Mapping of potential forestry biomass and relation to potential end-use (public power corporation, wood industry, district heating, pilot installations, etc). These studies, performed at local level, and the development of common methodology for mapping forest biomass potentials will support the biomass exploitation in forests. The studies must be developed as sample inventories, gathering information about volume and growth rate of different species at different morpho-climatic characteristics. These results can be then transferred to similar areas with homogeneous tree stratum to obtain potential biomass plans for energetic purposes.

On the other hand, these maps must include technical aspects related to the biomass characteristics and analysis about the most suitable locations for the biomass power plants according to the possibilities of developing efficient forestry energetic chains and territorial priorities.

Mapping of road infrastructure system. Since transport logistic is one of the most critical issues for the profitability of this activity, it is necessary to have a good knowledge on the road network in forests in order to plan the working methodology and equipments and to assess the actual biomass available. This mapping must include the road characteristics (road surface, width, surface characteristics, road density, related elements as road narrows and amplitudes...) which are basic data to design the activity.

Development of distant & cost – relation maps for biomass logistic. These maps must include the potential availability of biomass around power plants and data on the demand of biomass by the existing biomass power plants is useful to design areas of biomass supply.

The main results from AXIS 1 are:

- A protocol for assessment of forest biomass potential in selected area/region will be prepared. This protocol can be a useful tool for local and regional authorities to estimate forest biomass potential and use them as background for action to increase forest biomass use local community or region.

A common methodology for mapping forest biomass potentials

A) Optimisation of forest biomass production chains

4.1.3 Assessment of forest biomass production

At the beginning of this action partners will select pilot plots. In these pilot areas all variables of the process of biomass production will be studied in order to get real and adapted data that helps to define the characteristics and needs of the process to design sustainable forest biomass production.

There will be two pilot parcels in each area (in public and private forests). Public forest will be, preferably owned by local councils in order to involve these key actors. In both cases forests must have already developed technical plans of sustainable management, in order to use these plans as guidelines in the biomass production. There will be also constraints to be considered in the selection of the plots: accessibility, slope, forest characteristics, road infrastructure…

Expected results will be information that allows solving the doubts and taking the decisions needed when setting a biomass production plan: Methods of biomass production, impacts and environmental constraints, machinery issues, technical organization of the work, yields profitability of the operation (costs-benefits) and analyse of wood biomass quality. The outputs will be reports and technical guidelines, adapted to different forest characteristics taking into account economical and environmental aspects, with special emphasis on wood fuel quality.

B) ***Environmental impacts of forest biomass harvesting or extraction*.**

4.1.4. Assessment of the environmental impact of forest biomass harvesting or extraction

This action will consists on the analysis of the current forest works (or designed pilot actions) providing biomass for energy. They will be holistically studied to assess the Life-cycle assessment of the energy harvested at forest site. Not only energy and carbon inputs may be studied, but also environmental issues such as soil affection, residual stand quality and biodiversity and nutrition cycle. To be able to properly assess the impact of forest biomass harvesting/extraction on forest functionality and biodiversity, at different trophic and ecological level, two different monitoring programmes are suggested:

a) Vascular plant community

b) Terrestrial mammals community

This action will result in figures to assess best practices for biomass extraction as well as to assess overall figures of the harvesting practice in terms of environmental issues, setting the sustainability levels of biomass harvesting/extraction in the Mediterranean forests.

C) **Tracing wood biomass origin *(Chain of custody)***

4.1.5. Development of a system for traceability of forest biomass

This action will consist of the definition of a protocol of reference (following CEN 15234: Solid biofuels - Fuel quality assurance, EU biofuel sustainability policy and independent certification schemes(like FSC or PEFC)) that will be able to trace the origin of wood biomass. All links in the chain will be involved in the tracking system: owners and forestry companies, companies dealing with storage, trader related to biomass and companies engaged in the carriage at the final station. The best methodology to certificate, to ensure or to label the origin of the biomass at the production point will be studied. Special emphasis will be given on wood biomass quality assurance and quality control as a mean for chain of custody implementation.

Expected results:

- Ensure traceability at the source

- Fulfilment of legislative requirements related to forestry use

- Observance of good practices of sustainable forest management

- Compliance with quality and quantitative requirements applicable to the final product.

The requirements must necessarily take into account existing laws and operating procedures in the different countries, making the system adaptable and replicable in countries on the basis of technical and quality requirements set at national level.

The final result could be regional systems and standards of protocols to ensure traceability of biomass without hindering the activity of companies (reducing bureaucracy as much as possible) and it can represent an important platform for promoting the use of forest biomass with local or regional origin.

D) Analyzing short rotation energy plantations as additional wood biomass resource

4.1.6. Demonstration plots with short rotation energy plantations.

These cultivations can help to make the energy production process to be more sustainable and reliable if it is able to fill the gaps in supply that can happen if only forestry biomass is used in the biomass power plants. In selected region demonstration plots will be selected. The activities include:

- Quantification of growth and wood volume
- Identification of silvicultural systems, frameworks for planting, irrigation, subscribers.
- Estimation of CO2 fixed and biomass produced

This will involve collecting the following data:

Variables dasometric and dendrometer

- Distribution diameter
- Diameter normal and basal diameter
- Diameter canopy cover
- Overall height

Biomass and CO2 fixation

- Testing and felling
- Fixation of CO2

Wood fuel quality:

- Moisture, particle size distribution, bulk density
- Caloric value

4.1.7. Forest biomass management plans

The final stage of the work in this axis is the setting and pre-test of forest biomass management plans in public and private forests. They will be based in the current knowledge and the work developed previously in this axis and will go through the analyses of biomass chain in each site involved into the project; analyses of the main regulatory barriers for the market development; analyses of the main financial instruments in the territory; evaluation and optimization of biomass chain to guarantee the sustainability criteria in supply, production and valorisation; analyses of different type of the bodies involved into the project; creation of standard for the use of solid biomass sources in Mediterranean area to answer to the last COM of EC about sustainability requirements for the use of solid biomass (study of existing standard to coordinate and to summarize the actual situation in UE); definition of specific actions for a good management and sustainable use of forestry biomass. But also potentials for production of wood biomass in short rotation plantations will be included in forest biomass management plans. Were applicable the possibility of implementation of forest biomass management plans in to forest management plans will be studied.

These plans will be developed as technical guidelines with different approaches and solutions offered in order to make them transferable and applicable in the whole MED area.

Axis II: BIOMASS POWER PLANTS: SUPPLY AND FEASIBILITY.

This axis works on the specific issues associated to the energy use of the biomass produced. It includes logistic aspects (one of the most important constraints of this activity) and the issues related to the power plants supply.

This axis is made up by following activities:

4.2.1. Preparation of pre-feasibility projects of a small or medium size biomass plant or district heating/cooling system – a case of energy contracting

Energy contracting is a market orientated model for selling heat produced from forest biomass to one or more users (as local or district heating). It is a new and innovative opportunity for investments with high added value appropriate for forest owners, farmers, and other target groups in rural areas. There is a good potential of selling energy through energy contracting to public infrastructure and industry. This activity aims to present energy contracting model in Mediterranean region and encourage potential investors to implement energy contracting.

Participating project partners will select local communities with already developed supply side and prepare a pre-feasibility study for a small or medium size biomass plant or district heating/cooling system. A special emphasis will be given on implementation of energy contracting model. Pre-feasibility study will cover economical, environmental and technical aspects.

This action will promote small - regional energy contracting models where economical operations can be easily integrated into the existing infrastructure and have different positive socio-economic impacts on rural development (new income on farms, new job creation, energy independence...). Special emphasis will be given to public bodies, local communities and policy makers – to rise awareness about possibilities of wood biomass use in public building.

4.2.2. Presentation of existing good practice examples of forest biomass use

The aim of this activity is to transfer existing good practices in forest biomass use to all project partner countries or regions.

For each selected good practices example key data will be selected (a template will be prepared by Axis lead partner). It is important that different examples are selected – covering the whole variety of forest biomass use). The result will be a folder with selected best practice examples which will be used for promotion and can be used also after the project period. Each

best practice example will be described on one sheet consider the key data – documents will be available also on web page.

Activity 3 Building up of guidelines and operational recommendations to key stakeholders to fill the current gaps identified

Based on the results of the two previous actions, this action is aimed to prepare the application of the results of the project, trying to achieve the implication of partners at all levels (from local to MED and European) and to facilitate the capitalization of results. In order to get this, partner will develop Joint Guidelines and operational recommendations to local and regional authorities and forest owners for the development of the forestry biomass chain or Residual Forestry Biomass. These Guidelines will cover the regions participating in the project but will aim to be useful and applicable for all the MED regions. Therefore, it is expected to achieve suitable methodologies based on sustainability and profitability criteria to avoid negative impacts on the environment and the characterization of the ideal / optimum methods and technologies for the development of these works. Guidelines will be a useful tool for different stakeholders involved (local administrations, city halls, companies, forest service, forestry companies and forest owners etc.) in the decision making and forest management. An important aspect of the Guidelines will be focused on the compliance with quality standards.

A set of qualitative and quantitative indicators will be developed to properly monitor and evaluate this WG.

WP 5 RENEWABLE ENERGY AS AN OPPORTUNITY FOR LOCAL AND REGIONAL ECONOMY.

Related to this context, the activities have to take into account the 'energy shortage', meaning the difficulty of part of the population to access sufficient energy resource in order to satisfy its basic needs. This aspect has to encourage promoting low-cost technical solutions and improve accessibility to energy efficiency solutions.
- The optional WP must promote solutions and pilot activities that highlight the potential and the resources of the related project area (natural resources, economic sectors, local economic potential...)
Furthermore:
- The optional WP must contain a strong operational and concrete aspect in using information on the efficiency and the cost-benefit of techniques and procedures identified. The objective is the long-term development of these procedures and techniques in a sector biased by important public aid.
The development of renewable energy represents an important economic issue for the industrial sectors. The setting up and implementation of strategies for the development of renewable energy is also an opportunity for local and regional economies.
This work package aims to help local and regional authorities to better exploit the economic potential represented by these renewable energies and use these economic sectors to provide high quality services.
The strategic project doesn't have a one-sector approach but must be focused on the most significant experiences according to the needs, priorities and competences of the partners.
To capitalise and exchange experiences on the local and regional economic impact of the development of the different kinds of renewable energy sources (biomass, solar and wind energy)
To mobilise key actors and test the possibility to develop competence and quality clusters specialised on renewable energy according to the specific energy needs of Mediterranean regions and territories
To analyse chains of production, delivery and use of the biomass (forestry and agriculture) to improve their functioning ("short supply chains"). To promote solar photovoltaic and solar thermal in relation with local and regional economic actors
To train and develop skills of economic actors in the regions. To develop agreements between training institutions and professional unions
Mobilisation of key actors for the development of clusters of expertise and competences specialised on renewable energies
Promotion of short supply chains of biomass (agriculture, forestry) to produce energy.
Improvement of competences of technicians and economic actors in the regions. Setting up of agreements between training institutions and professional bodies

This WP aims to provide local and regional authorities strategy tools and support to better exploit the economic potential represented by forestry biomass and to set structures that allow the permanent dialogue between private and public actors. It is engaged with WP3 (where stakeholders have been identified) and WP4, where biomass forestry chains have been analyzed and other pilot experiences have been developed. The aim is to reach the

involvement of the different key-stakeholders in each partner territory, using participation strategies that enable the permanent dialogue between stakeholders and the development of Strategic orientations to implement policies for the development of renewable energies in Mediterranean regions. It has also pilot experiences specifically aimed to support the development of the territorial framework (working on the stakeholders' implication and coordination, the build up of clusters and the territorial planning) and to implement communication and support tools to stakeholders.

At the beginning of this action a joint methodology will be proposed by the WP leader in order to associate the best external expertise and stakeholders. The common framework will thus include indications about what type of external experts each region should form the stakeholder panel to elaborate its regional strategy. Special importance will be given to the participation of private actors and representatives of professional associations and industrial clusters or groups of interest. Also, this common framework will provide the necessary harmonization of the agendas' priorities, promoting synergies, communication, interactions and connections between the participating partners and non partner structures in each region.

Consultation processes will be then arranged in each region in the form of workshops, seminars, meetings, focus groups or similar –regarding specific regional conditions, until reaching the level of information and quality previously defined in the common framework. The consultation will associate representatives of the SME's and Public Administration in order to detect needs and demands of these stakeholders and involve them in the project activities. Experts in the issues of the project will also be consulted and integrated in the proposal. According to the detected items and links with existing regulations and frameworks, a first proposal of the economic development strategy will be discussed in every country (action coordinated by the National coordinator) by each partner. After reviewing and agreement with SME's representatives, forest owners, public Administration and other stakeholders, the final version will be formulated.

This WP will find out how the regional, national and EU policies are in place to support the regional forest bioenergy development strategies. Local and national policies and agendas will be compiled, and synergies of strategies and capacities will be analyzed. The task will also evaluate the economic impact of the deployment of the wood bioenergy activity in each region. The impact assessment may consist on number of direct and indirect jobs created, GDP created and its share to the regional GDP.

Each partner will prepare a strategic report on "Renewable Energy as an opportunity for the region". From these reports, a joint Report will be elaborated with the opportunities for the Mediterranean region and widely disseminated. Regional authorities, research centers and economic actors will be involved in the Report. Later, local and regional guidelines/regulations will be developed in each partner country.

A set of qualitative and quantitative indicators will be developed to properly monitor and evaluate this WG.

On the other hand, several pilot experiences will be developed to foster the territorial framework for the development of the potential of forestry biomass activities:

Axis III. DEVELOPMENT OF THE TERRITORIAL FRAMEWORK: STAKEHOLDERS' IMPLICATION AND COORDINATION, BUILD UP OF CLUSTERS, TERRITORIAL PLANNING.

When it comes to develop or revitalize the activity of forestry biomass production, it is necessary to pay special attention to many other factors apart from the mere technical and logistic issues: the territory and its social and economic infrastructure, paying special attention to the stakeholder structure and working in their involvement.

5.3.1. Development of the economic and social network for energetic use of the forestry biomass.

This pilot action is focused on the organizational aspects of the forestry biomass production chains:

- Diagnosis of the property scheme of forests, including personnel surveys to forest owners in order to set a database about forest owners and the characteristics of the forests. This is very useful for communication, training and awareness activities in each area.
- Specific work will be developed also about the social and cultural constraints and problems for the development of the biomass exploitation
- Involvement of stakeholders in the activity, developing of clusters of stakeholders (starting from the same level: forest owners, forest workers, technicians, administrations) and then supporting the integration of the different levels. The work includes the design of the most suitable clusters for the integration and involvement of local stakeholders.

- Support to the involvement of forest owners in the programs of forest certification (PEFC, FSC).
- Public campaigns for transparency and the demonstration of the environmentally goodness of the biomass-for-energy activity for the forest management.

Axis IV. COMMUNICATION AND SUPPORT TOOLS TO STAKEHOLDERS.

This axis works in the development of specific tools to promote communication, dissemination awareness and training activities that support the building up of the forestry biomass exploitation in the MED area. It includes information and promotion campaign for awareness raising of local and regional stakeholders, and technical assistance to stakeholders (administrations, forest owners, power plants owners and local population):

5.4.1. Office for Promoting the Energy Recovery from Biomass of Forestry and Rural residues.

This office must be created in cooperation with all the Municipalities in the area, the regional bodies, Agricultural Cooperatives, Chamber of Commerce, NGOs… This office will play a vital role in the collection and dissemination of best practice that will be gathered during PROFORBIOMED. This office will continue to run after the end of project. The objective of the office will be to trigger investments in the field of energy from biomass.

5.4.2. Creation of a Web portal

that connects customers (individuals and small and medium-sized power plants) and suppliers of biomass. The portal will pursue several objectives:

- For biomass producers: high standards of product quality and forest uses - "healthy competition" in the market - visibility and marketing.

- For customers: guarantee the quality of the product – possible choice between qualified companies - product availability regional / local guaranteed

5.4.3. Application on field of best practices of sustainable forest management.

This action is aimed to disseminate the information and results coming from the project in the MED area. It will include technical meetings (in class and on field) about good forest management practices related to sustainable production of biomass.

Objectives to pursue:

- Continuous updating of agro-forestry companies about energy crops usable in their territories: system types, case studies (poplar at Medium Short Rotation Forestry etc.).

- Examples of technical economical evaluation on the agro-energy crops (convenience, applicability of the crop etc)

- update and learning about the best forestry techniques in accordance with the principles of sustainable forest management

- application in the system of traceability of biomass previously described

- technical support to new agro-energetic companies.

WP 6 TO PROMOTE INTELLIGENT ENERGY MANAGEMENT SYSTEMS AT LOCAL AND REGIONAL LEVEL (SMART GRIDS)

Related to this context, the activities have to take into account the 'energy shortage', meaning the difficulty of part of the population to access sufficient energy resource in order to satisfy its basic needs. This aspect has to encourage promoting low-cost technical solutions and improve accessibility to energy efficiency solutions.
- The optional WP must promote solutions and pilot activities that highlight the potential and the resources of the related project area (natural resources, economic sectors, local economic potential...)
Furthermore:
- The optional WP must contain a strong operational and concrete aspect in using information on the efficiency and the cost-benefit of techniques and procedures identified. The objective is the long-term development of these procedures and techniques in a sector biased by important public aid.

This work package aims to promote intelligent energy management systems (smart grids) in order to improve energy efficiency, to reduce costs for users and promote cost/efficient renewable energy sources.
The objective is to capitalise experiences on ongoing initiatives in Mediterranean regions and to promote the development of systems which can contribute to reduce the level of energy consumption or to improve the access to low cost energy for local and regional populations.
To identify ongoing initiatives, pilot projects and experimentations in Mediterranean regions focused on improving energy efficiency and reducing energy consumption (smart grids at local and regional level)
To exchange experiences and support pilot projects which could be further developed in other Mediterranean regions

Identification of smart grid solutions for local and regional context
Promotion of pilot projects diffusing intelligent energy management systems to be used by local and regional authorities

The concept of Smart grids is probably too complex to include it as an issue in this project. However, we can use the concepts of Smart grids to apply them in the forestry biomass production chain. On the other hand, we can also prepare this chain to be ready for its inclusion when the development of smart grids at higher levels (smart grids that include different sources of energy production) will be promoted at European level. The objectives will be to apply smart grids solutions at local and regional level and to promote intelligent energy management systems to local and regional authorities. This WP will work on optimizing the work of existing or hypothetic grids from the point of view of the warranty of biomass supply as needed from the (electric) grid. It must be taken into account that biomass is considered, by contrast to photovoltaic and wind energy, as a manageable energy. Biomass can be stored, but wind or sun energy not.

We can adapt the concept of Smart grids to the PROFORBIOMED project by working on the improvement of the logistic related to the supply of biomass to the Power plants at local and regional scale, trying to link users to different suppliers – diffusion of resources – from wood processing industries, forest based industries, existing biomass producers and forest owners – to organize virtual biomass logistic centers in the region where users can access data about supply and suppliers can get data about potential users. It includes the connection among different power plants and different sources of biomass (forest biomass from different areas or combing also biomass from agriculture) in order to optimize system reliability, quality and security of supply. This could lead to the development of a complete chain management system that include all actors, from forest owners to power plants managers, in order to run the system in a more efficient way, improving the planning, information and communication among the partners and managing the forests in a sustainable way. The final aim is to make energy from forest biomass a reliable source of energy for stakeholders by applying the smart grids concepts.