Project co-financed by the European Regional Development Fund

Interreg Mediterranean ForBioEnergy

FORBIOENERGY - Forest Bioenergy in the Protected Mediterranean Areas

Administrative and technical barriers to the production of biomass in the protected areas

REGIONE SICILIANA
ASSESSORATO REGIONALE DELL'AGRICOLTURA, DELLO SVILUPPO RURALE E DELLA PESCA MEDITERRANEA
DIPARTIMENTO REGIONALE DELLO SVILUPPO RURALE E TERRITORIALE

Municipality of Petralia Sottana

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VELEBIT

Deliverable 3.3.1

Barriers and potential solutions for increasing biomass production in the protected areas

Responsible Partner:

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PP3: Slovenian Forestry Institute

PP4: Regional Development Agency Green karst Ltd

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June 2017

Project Acronym:	ForBioEnergy
Project full title:	Forest Bioenergy in the Protected Mediterranean Areas
Grant agreement number:	1MED15_2.2_M2_182
Leading partner:	Sicily Region - Councillorship for Agriculture, Rural Development and Mediterranean Fishing - Regional Department for the Rural and Territorial Development
Deliverable:	D3.3.1 Barriers and potential solutions for increasing biomass production in the protected areas
Summary:	This delivery establishes an examination of the key barriers and the possible solutions, useful to identify the recommendations for the key actors to implement a new regulatory framework and permit rout concerning biomass use
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Due date of deliverable:	06/2017
Status:	Submitted
Distribution:	All partners
Document ID:	ForBioEnergy-D3.3.1_Barriers and potential solutions for increasing biomass production in the protected areas
Version:	Definitive

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1 INTRODUCTION

This document reflects the contributions made by each project partner regarding the different types of barriers that can be found for the use of forest biomass and agroforestry resources in protected areas within the scope of the project. On the other hand, a synthesis of the different barriers has been carried out in a way that reflects set of representative barriers of the participating regions.

The inventory and the identification of all barriers across the forest-based bioenergy value chain and specifically in the protected areas have been done:

a) proposing useful solutions,
b) Identifying recommendations for the key actors involved (public and private forest owners, forest enterprises, bioenergy companies, final users, administrations etc.),
c) developing and action plan at regional as well as at Mediterranean level,
d) and implementing a new regulatory framework to enhance the integral use of forest biomass for bioenergy purposes.

The barriers identified by each participating region have been classified as follows:

1. **LEGISLATIVE BARRIERS,** such as regulatory constraints that prevent or restrict Sustainable Forest Management (SFM) plans and projects to mobilise forest biomass as raw material for bioenergy as renewable energy source.

2. **ADMINISTRATIVE BARRIERS,** such as complexity and duration of authorization procedures for the implementation of forest plans and projects for local public or private owners, companies and/or administrations.

3. **TECHNICAL BARRIERS,** not only in the forest management, harvesting and biomass supply, such as lack of standards/recommendations for efficient forest technologies and/or environmental impact on forest ecosystems in relation with the specific characteristics of the protected areas, but also in the industrial conversion of biofuels as well as final energy use, such as appropriate mechanical, thermal and electrical bioenergy conversion technologies at local level or final use of thermal and/or electrical bioenergy under Mediterranean conditions.

4. **SOCIAL BARRIERS,** such as lack of technical knowledge and professional specialization in rural areas, ageing population in rural less-favoured regions etc.

5. **ECONOMIC BARRIERS**, such as logistic costs, sustained raw material supply and contracting in volume and quality, fluctuations in biofuel prices, lack of investments and public funding in rural areas, etc.

2 OBJECTIVES

The **OBJECTIVES** of these preliminary guidelines are:

1. To collect, identify and analyse actual legislative, administrative, technical, social and economic barriers for determining their key bottlenecks and/or salient features in each participating region.

2. To identify former solved legislative, administrative, technical, social and economic barriers and the solutions developed to overcome or mitigate them in each participating region.

3. To propose possible solutions to the key barriers in protected areas in each participating region.

4. To define operational recommendations for the key actors in each participating region: national, regional and local public administrations and private stakeholders (owners and companies etc.).

5. To extract conclusions based on the exchange of knowledge and experiences among the participating regions.

3 METHODOLOGY

To achieve these objectives, the **METHODOLOGY** implemented has consisted in developing a short and clear regional report on legislative, administrative, technical, social and economic barriers and potential solutions for enhancing forest-based bioenergy projects in the protected areas in our regions, involving the active participation of the key stakeholders.

The **REGIONAL REPORT** has been carried out by:

Region	Partner
Croatia	Zadar County
	Public institution Nature Park Velebit
Sicily	EnviLand Ltd
	Municipality of Petralia Sottana
	Sicily Region
Valencia	The Forestry Municipalities Association of Comunitat Valenciana
	Valencia Official Chamber of Commerce, Industry, Services and Shipping
Slovenia	Regional Development Agency Green Karst Ltd.
	Slovenian Forestry Institute

The **STRUCTURE** of the final report includes:

1. **Results**. – Actual mapping (general flow chart) of common key barriers across the value chain for all participating regions.

   1.1. Inventory, classification and integration of all barriers across the forest based-bioenergy value chain.
   1.2. Identification of barriers in national/regional/local protected areas (Natura 2000, National Parks, Nature Parks, etc.).

2. **Conclusions**: possible solutions to the common key barriers identified for all participating regions.

   2.1. Selection of 6 key barriers in national/regional/local protected areas (Natura 2000, Nature Parks, National Parks).
   2.2. Involvement of regional stakeholders, proposal of possible solutions and definition of operational recommendations.

4 RESULTS - ACTUAL MAPPING (GENERAL FLOW CHART) OF COMMON KEY BARRIERS ACROSS THE VALUE CHAIN FOR ALL PARTICIPATING REGIONS

4.1 Inventory, classification and integration of all barriers across the forest based-bioenergy value chain

Legislative barriers

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
LEGISLATIVE	(1) The environmental legislation and the rural development are not coordinated with energy legislation. (2) General lack of regulatory framework for forest management plans oriented to biomass production. (3) Lack of clear operational tools for integration of Natura 2000 criteria and indicators in forest management plan.	(1) Unclear implementation of several legislation related with traceability and legal treat of wood and wood products. (2) Restrictions of harvesting works under at high forest fire risks.	(1) No clear system to trace of origin of woodchips as raw materials.	*No obstacles found*	*No obstacles found*	(1) The Law on the implementation of decision of the EU of the illegal trade of wood and wood products does not solve the control system of solid biofuels distributers (traceability /regulation certification is needed).	(1) Monopolistic/oligopolistic RES[1] electrical market: limited opportunities for local investors. (2) Changing rules for pricing of RES electricity and competence with other renewable sources	*No obstacles found*

[1] RES: Renewable Energy Source

Administrative barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
ADMINISTRATIVE	(1) The majority of forest is private and fragmented, so management is difficult. (2) Excessive bureaucracy and complicated administrative burden for approving forest management plans due to the authorizations and permissions issued by different public bodies.	(1) Difficulties to obtain grants due to its administrative procedures. (2) Lack of transparency in the information in regarding to the auctions and also with the foreseen volumes. (3) For private forests, there are not enough owners associations which could draw funds, e.g. RDP 2014-2020. (4) For the public forests interventions, long administrative procedures related to the purchase of equipment, the commitment of the works, the acquisition of services and their payment.	*No obstacles found*	*No obstacles found*	(1) Lack of regulation of local market.	(1) Insufficient control on producers and distributers of solid biofuels.	(1) Bureaucreacy and long times for the authorizations for the instalations of biomass plants/facilities.	(1) Complex and long administrative procedures for obtaining authorizations for establishment of district heating systems.

Technical barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
TECHNICAL	(1) The lack of Forest Management plans deprives the forest public managers and the private owners of the data necessary (quantity and quality of extractable forest biomass) to the time and spatial programming of the annual management interventions. (2) Lack of sylvicultural treatments in young stands (afforestations and natural regenerated stands).	(1) There is not coordinated planning across the entire supply chain. (2) Lack of adequate machines and skilled manpower necessary to reach high intervention efficiency, low harvesting costs and low environmental impact. (3) Lack of logistic platforms, storage and quality classifications facilities. (4) Difficult geography and inadequate/deficient forest road systems for the logging and transport of biomass.	(1) Seasonality of woodchips supply. (2) Variability of woodchip quality depending on trees species. (3) The quality of woodchips is questionable, no system for ensuring woodchip quality.	(1) Variability of pellet quality depending on the mixes of tree species. (2) Constant quality of pellets is not guarantee; quality labels are needed.	(1) Lack of quality standard. (2) Old heating systems with low efficiency and high emissions, especially dust particles.	(1) No quality assurance systems for biofuels, especially from different sources (forest, agriculture). (2) Not established distribution/sales centres for wood fuels/ biofuels.	(1) Lack of knowledge on modern systems hinders the development of short production chains for thermal/electrical conversion at local level. (2) Lack of knowledge on quantity and quality (e.g. mixed biomass sources) do not allow designing optimized conversion units.	(1) Low technology level and maintenance skills for domestic uses "boilers, district heating".

Social barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
SOCIAL	(1) Insufficient awareness of the opportunities arising from the exploitation of biomass due to the lack of an institutional strategy communication. (2) Small private forest owners unconnected and not able to active management their forests. (3) Social pressure against forest management through radical environmental activists.	(1) The abandonment of forest areas by private owners' due to the absence of forest products markets. (2) Lack of information of forest owners about limits and possibilities of forest biomass harvesting.	(1) Lack of knowledge for manufacturing woodchips. (2) Lack of examples of good practices.	(1) Lack of knowledge for manufacturing pellets. (2) Lack of knowledge about the advantages of medium-long term in comparison with oil or gas fossil fuels boilers in domestic uses.	(1) Lack of market to regulate the use of firewood as bioenergy. (2) Lack of knowledge about the advantages of medium-long term in comparison with oil or gas fossil fuels boilers in domestic uses.	(1) Local markets are not established. (2) Lack of connectivity of small producers at local level.	(1) Lack of specialist technical skills in management and maintenance of conversion units (CHP plans). (2) Distrust in join projects: weak systemic vision in linking agricultural/forestry/urban residues use for energy conversion.	(1) Knowledge on benefits of bioenergy use for sustainable forest management and conservation. (2) Insufficient and discontinuous public support for pilot projects: low implementations of best practices from successful projects.

Economic barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
ECONOMIC	(1) High cost for sylvicultural measures, especially in fire prevention activities in young stands, due to a low profitability. (2) Lack of investment by private owners for ordinary and extraordinary sylvicultural interventions, e.g. due to the difficulty to access to the Aid Scheme provided by the Regional Rural Development Programme (RDP) 2014-2020	(1) High harvesting costs: high costs for the biomass extraction, especially in young stands. (2) High logistics costs: high transport costs due to the difficult orographic characteristics of the territory and the inadequate/deficiency forest road network. (3) Prices instability of biomass in local markets due to changing offer/demand situation. (4) Inefficacy of large public companies in comparison with small local harvesting companies. (5) High dependence on public funding for the purchase of high technology equipment that could contribute at reducing costs.	(1) High costs of infrastructures to produce and classify woodchips in rural areas. (2) Low return rates for investments. (3) Instability of woodchips prices depending on variable offer/demand relation at local level.	(1) High investments for medium size pellet plant, especially high energy cost in manufacturing process. (2) Existence of price conditioning factors, such as price fixing by public administrations or impact of global markets.	(1) Lack of transparent firewood markets.	(1) High costs for small quantities in local markets.	(1) Lack of guarantee on the supply continuity of biomass for the conversion plants due to the biomass supply market. (2) Monopolistic/oligopolistic market situations: lack of transparency in pricing of energy products (heat and power). (3) Lack of knowledge on the potential of conversion plants: profitability, pay-back time of the investments, financing investments, incentives for funding, etc. (4) Progressive reduction of incentives in the RES sector, including biomass plants. (5) Inability of local/regional authorities to use/exploit available public funds (EU, national/regional) for supporting new installations (CHP, district heating, boilers)	(1) Lack of local demand markets for biofuels. (2) Uncertainty in final prices of biofuels for domestic end use (pellets for boilers, thermal energy from district heating).

4.2 Identification of barriers in national/regional/local protected areas (Natura 2000, National Parks, Nature Parks, etc.)

Legislative barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
LEGISLATIVE	(1) Conservation of forest has higher priority than production of biomass in protected areas. (2) Excessive and overlapping protection figures (National and Nature parks, Natura 2000 and other figures), without specific management plans. (3) No clear guidelines to complain with the general rules and requirements of Natura 2000 in Forest Management plans. (4) Afforestation with non-native trees species is restricted.	(1) No specific legislation restricting harvesting, but no explicit provision on the use of environmental friendly technology of wood/biomass harvesting. (2) Difficult construction of new forest roads.	*No obstacles found*	*No obstacles found*	*No obstacles found*	(1)There is not special incentive for the development of local biomass chain for the supply and use of bioenergy in protected areas.	(1) Legal restrictions to establish industrial plants of biomass in protected areas.	(1) Legal restrictions to establish bioenergy distribution networks to isolated settlements of biomass in protected areas.

Administrative barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
ADMINISTRATIVE	(1) The principle of precaution difficults the authorizations of the forest management plan. (2) Long time to get the necessary authorizations for the implementation of forest management plans in protected areas. (3) Each protection figure (Natural Parks, Natura 2000 (SCI, SPA), etc.) required different management plans, with different administrative procedures.	(1) Long time to get authorizations to implement forest operations (thinning, harvesting, road systems for extraction biomass) including evaluation of environmental impact. (2) Selection of cheapest contractors for harvesting works leads to poor performance of work and negative environmental impact in protected areas.	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*

Technical barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
TECHNICAL	(1) Difficulty in forest management plans in highly fragmented private forests.	(1) Restrictions on harvesting technologies, especially under bushfires risks. (2) The forest operations are limited according to the ecological guidelines for Natura 2000 protected habitats and species.	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*

Social barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
SOCIAL	(1) Ignorance of protected areas (especially in Natura 2000 species and habitats) from private forest owner's perspective. (2) Fragmented ownership which leads to an abandonment of forestry management in protected areas. (3) Reticence to use biomass in protected areas.	(1) Social pressure against wood/biomass harvesting through radical environmental associations.	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	(1) Lack of information about opportunities and advantages of collective heating among resident of protected areas.

Economic barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
ECONOMIC	(1) No refunds due to production oriented management, due to the main functions of forestry in protected areas: landscape, tourism, ecosystem protection.	(1) Restrictions in forest operations increase the cost wood/biomass harvesting.	*No obstacles found*	*No obstacles found*	*No obstacles found*	(1) Biofuels obtained from protected areas are not so much to represent a comprehensive market or quality brand.	*No obstacles found*	*No obstacles found*

5 CONCLUSIONS - Possible solutions to the common key barriers identified for all participating regions

5.1 Selection of 6 key barriers in national/regional/local protected areas (Natura 2000, National Parks, Nature Parks, etc.)

The six key barriers in the national/regional/local protected areas are:

Priority	Barrier	Step of value chain (Forest management, forest harvesting & logistics, etc.)	Character (Legislative, Administrative, Technical, Social and Economic)
1st	Long-time and complexity of authorization for the extraction of biomass in protected areas.	Forest management and forest harvesting & Logistics	Administrative
2nd	The fragmented ownership of private forest, the inadequate organisation and the lack of interest in biomass production.	Forest harvesting	Social
3rd	Reticence to use biomass in protected areas: production function is not balanced with conservation function.	Forest management	Social
4th	Low profitability in biomass production, especially in protected areas.	Forest management	Economical
5th	Poor integration of local stakeholders across the forest-based bioenergy value chain	Distribution	Economical
6th	Lack of synergies and coordination among the administrative levels (local, subregional, regional and national) in the territories included in the protected areas.	Thermal/electrical energy conversion	Administrative

5.2 Involvement of regional stakeholders, proposal of possible solutions and definition of operational recommendations

Following it is a detail of the key six barriers developed according to the stakeholders involved, the possible solutions proposed and their operational recommendations:

Definitive Priority	Barrier	Stakeholders involved in the MED area	Proposal of possible solutions	Operational recommendations
1st	**Long-time and complexity of authorization for the extraction of biomass in protected areas**	(1) Local/regional public authorities (2) Private forest owners (3) Municipal forest owners (4) Private and public companies (5) Professional associations and technicians (forest engineers) (6) Management bodies of the protected areas	(1) Simplification of the authorization procedures of forest management plans and harvesting operations. (2) Standardization for simplifying the administrative normative. (3) Objectives: - To ensure the timely release of permissions and to ensure the continuity of biomass supply. (4) Control system to evaluate for ameliorating the internal administrative procedures.	(1) Political willingness to support sustainable forest management in protected areas. (2) Definition of policies and standardized procedures for administrative streamlining. (3) Provide more administrative staff and technical expertise in sustainable forest management in protected areas; especially bioenergy-use linked it with bushfires prevention.

Definitive Priority	Barrier	Stakeholders involved in the MED area	Proposal of possible solutions	Operational recommendations
2nd	**The fragmented ownership of private forest, the inadequate organisation and the lack of interest in biomass production.**	(1) Private forest owners (2) Local/regional public authorities	(1) Organisation and establishment of local/regional associations of forest owners. (2) Environmental services payments for forest owners who undertake active and sustainable management in protected areas.	(1) Promotion of agroforestry cooperatives at local level in the protected areas. (2) Active and efficient associative forest management formulas: private-public cooperation, territorial custodian entities, etc. (3) Inform local/private owners on best practices in other regions/countries. (4) Managers of protected areas (Natural Parks) organise workshops for private forest owners and actively participate in the establishment of the association. (5) To use rural development programme measures for boosting private forest associations' activities in protected areas.

Definitive Priority	Barrier	Stakeholders involved in the MED area	Proposal of possible solutions	Operational recommendations
3rd	**Reticence to use biomass in protected areas: production function is not balanced with conservation function.**	(1) Private forest owners (2) Municipal forest owners (3) Local/regional public authorities (4) Management bodies of the protected areas (5) Higher education and research (6) Professional education and technicians (forest engineers)	(1) Disseminate in the public opinion the basic principle of sustainable forestry: - Binomial between forest conservation and management. (2) Promote sustainable forest management measures appropriate for local climate and environmental climate conditions in the Mediterranean areas. (3) Arise awareness of the local communities on the benefits of sustainable forest management oriented to the biomass production for energy purposes, improving environmental services of the ecosystems and resilience against bushfires and climate change.	(1) Identification of pilot/project areas representative for good practices in sustainable and multifunctional forest management to be disseminated. (2) Quantitative analyses of criteria and indicators of environmental impact (biodiversity, quality of soil and water, landscape, carbon balanced and bushfires prevention) after biomass harvesting operations in protected areas. (3) Dissemination activities on the environmental benefits (biodiversity, quality of soil and water, landscape, carbon balanced and bushfires prevention) due to the energy production for biomass short chain.

Definitive Priority	Barrier	Stakeholders involved in the MED area	Proposal of possible solutions	Operational recommendations
4th	**Low profitability in biomass production, especially in protected areas**	(1) Private forest owners (2) Municipal forest owners (3) Private and public forest companies: harvesting and logistics (4) Manufacturers of biofuels	(1) Define and establish local forest biomass markets in protected areas that guarantee quality, price and supply. (2) To promote the local demand for biofuels in protected areas.	(1) Development and implementation of quality labels and traceability schemes of forest biomass and biofuels. (2) Promoting the use of biofuels at local level, especially in industries and public buildings/facilities with a high demand for thermal energy.

Definitive Priority	Barrier	Stakeholders involved in the MED area	Proposal of possible solutions	Operational recommendations
5th	**Poor integration of local stakeholders across the forest-based bioenergy value chain**	(1) Private forest owners (2) Public forest owners (3) Private and public forest companies (4) Manufacturers of biofuels (5) Local/regional public RES agencies (6) Higher education and research (7) Standardization and quality control bodies/labs (8) End users of bioenergy	(1) Knowledge exchange involved stakeholders at local/regional level. (2) Integration of stakeholders through specific association of forest bioenergy from the forest management to the bioenergy valorisation. (3) Coordination of the different departments of the local/regional public administrations to favour the development of the entire forest bioenergy value chain. (4) More transparency and competitiveness in the allocation of biomass harvesting operations especially in public forests, avoiding if possible oligopoly or monopoly situations by large companies or public enterprises.	(1) Creation of forest bioenergy platforms at local level in protected areas. (2) Creation of forest-based bioenergy showrooms at local level to stimulate the demand of local biofuels.

Definitive Priority	Barrier	Stakeholders involved in the MED area	Proposal of possible solutions	Operational recommendations
6th	**Lack of synergies and coordination among the administrative levels (local, subregional, regional and national) in the territories included in the protected areas.**	(1) Local/public authorities (2) Local/regional public RES agencies (3) Regional and municipal relevant departments and public companies (4) Management bodies of the protected areas (5) Infrastructure and public service provider	(1) Awareness raising and involvement of local/regional authorities responsible for issuing permits linked to the biomass sector. (2) More involvement of managers of protected areas in the preparation of forest management plans, especially in Natura 2000 areas.	(1) Establish of periodic technical/administrative panels among the involved local/regional authorities in order to highlight each other's competences and to define the operating modalities for the permissions issuing. (2) Regional authorities stimulate the participatory involvement of managers of protected areas in the preparation process of Forest Management Plans.

6 ANNEXES

6.1 CROATIA

Report is prepared by: Nature Park Velebit and Zadar County

6.1.1 Brief summary in Croatian language

U Republici Hrvatskoj provodi se izrada strateških dokumenata iz područja šumarstva, prerade drva i proizvodnje namještaja. Također se postojeći Zakoni o šumarstvu prilagođavaju tim dokumentima i dokumentima koji su usvojeni, koji pokrivaju područje poljoprivrede i druga upravna područja.
Najveći potrošači prostornog drveta su kogeneracijska postrojenja koja traže povećanje kvote za izgradnju te tvornice peleta. Ograničavajući faktor je mogućnost dobivanja sirovine – prostornog drveta, koji ima svoja biološka ograničenja.
Na području Republike Hrvatske najvažniji dionik u proizvodnji biomase je državna tvrtka Hrvatske šume d.o.o. Njihova interna politika određivanja nabavnih cijena usluga od podizvođača i politika zapošljavanja prvenstveno sjekača značajno utječe na održivost malog i srednjeg poduzetništva u sektoru šumarstva te zadržavanje stanovništva na ruralnom području.
Potrebno je u uspostaviti sljedivost drvne sirovine.
Uz proizvodnju u državnim šumama, koja je organizirana kao održiva i ima FSC međunarodni certifikat, ostali izvori biomase su KKO i privatne šume.
Zakon o kulturama kratke ophodnje (KKO) (koji je u izradi) bi trebao omogućiti dulji vijek, od planiranih 16 godina, za korištenje ostalog poljoprivrednog zemljišta (PŠ) za uzgoj KKO.
Za bolje iskorištenje privatnih šuma potrebno je ulagati u rad s vlasnicima šuma, poticati ih na udruživanje te organiziranje edukacija kako bi isti mogli koristiti sredstva namijenjena razvoju šumarstva (Mjera 8) iz Programa ruralnog razvoja 2014.-2020.

6.1.1.1 Abbreviations

Kratice / eng. *Abbreviations*

N/A – nije primjenjivo / Not Applicable
KKO – kulture kratkih ophodnji // SRC - woody Short Rotation Coppice
RH – Republika Hrvatska // RC – Republic of Croatia
NP – Nacionalni parkovi / National parks

6.1.2 Inventory, classification and integration of all barriers across the forest based-bioenergy value chain

Legislative barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
LEGISLATIVE	(1)There are no obstacles, except that the new forest management plans and programs must be aligned with NATURA 2000 (ecological network). (2)There is no Law on woody Short Rotation Coppice (SRC)	(1)The Law on the Implementation of Decisions of the European Union on the illegal trade in wood and wood products did not solve the control system of economic operators and woodcutter traders did not define corrective and penal provisions and a new law need to be created and adopted. (2)Ordinance on types of forestry operations, minimum conditions for their implementation and works that could be undertaken by forest owners independently imposes a number of demands for contractors (entrepreneurs who are subcontractors of Hrvatske šume d.o.o. that can not fulfill such demands, which is tolerated because of unrealistic price of procurement by Hrvatske šume d.o.o.)	(1)Still not adopted The Law on woody Short Rotation Coppice (SRC); such law would increase the availability of raw materials and reduce dependence on state monopoly. (2)Cogeneration plants, pellet production and firewood production are in competition with the same raw material. (3)Lack of basic strategic documents that would completely regulate this situation (Wood Processing and Furniture Manufacturing Strategy of the Republic of Croatia 2017-2020)			(1)The Law on the Implementation of Decisions of the European Union on the illegal trade in wood and wood products did not solve the control system of economic operators and woodcutter traders, did not define corrective and penal provisions and a new law need to be created and adopted.	(1)Cogeneration plants owners are seeking to increase energy biomass production quotas. They seek a more liberal approach for permanent short roration crops.	*No obstacles found*

Administrative barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
ADMINISTRATIVE	(1)Private forests are fragmented and manageent is very difficult. (2)The SRC Law proposal does not comply with the biological possibilities of breeding.	(1)There are not enough private forests owners associations which could draw funds from the measures of the Rural Development Program of the Republic of Croatia.	*No obstacles found*			*No obstacles found*	*No obstacles found*	*No obstacles found*

Technical barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
TECHNICAL	(1)Private forests are fragmented and it is difficult to manage them economically except through forestry associations which are mostly not. (2)Internal Policy of Hrvatske šume d.o.o. related to the employment policy of cutters (low wages, fixed-term employment) is not in function of rural development and retention of population.	(1)Internal Policy of Hrvatske šume d.o.o. towards entrepreneurs in the forestry sector (unrealistically low prices of works and services) causes a continuous weakening of small businesses. (2)The internal policy of the Hrvatske šume d.o.o., which is reflected in the unrealistic policy of cutters, has an adverse impact on maintaining quality workforce (low wages, fixed-term employment).	(1)There is no estimate of how much and how additional raw materials can be provided from other sources of biomass – agricultural residue, for example. (2)Cogeneration, pellet production and fuel wood production are in competition for the same raw material, which leads to problems in planning further development.			*No obstacles found*	(1)Cogeneration, pellet production and fuel wood production are in competition for the same raw material, which leads to problems in planning further development.	*No obstacles found*

Social barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
SOCIAL	(1)The use of biomass is not enough in the function of rural development. (2)Internal Policy of Hrvatske šume d.o.o. related to the employment policy of cutters (low wages, fixed-term employment) is not in function of rural development and retention of population.	(1)The use of biomass is not enough in the function of rural development. (2) Internal Policy of Hrvatske šume d.o.o. towards entrepreneurs in the forestry sector (unrealistically low prices of works and services) causes a continuous weakening of small businesses.	(1)Employment in this sector is sustainable and enables continuous retention of the population in the rural area.			(1)Employment in this sector is sustainable and enables continuous retention of the population in the rural area.	(1)Employment in this sector is sustainable and enables continuous retention of the population in the rural area.	(1)Employment in this sector is sustainable and enables continuous retention of the population in the rural area.

Economic barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
ECONOMIC	(1)Forestry is a traditional branch of the economy which is under the influence of politics since most forests are state-owned.	(1)By its internal policy, Hrvatske šume d.o.o. affect the forestry sector as a whole sae as produce of biomass due to its monopolistic position.	(1) The monopolistic position of the state (Hrvatske šume d.o.o.) in the supply channel of raw materials in whole Croatia, has a significant influence on this sector and the business of each private company.			(1)The monopolistic position of the state (Hrvatske šume d.o.o.) in the supply channel of raw materials in country has a significant influence on this sector and the business of each private company.	(1)The monopolistic position of the state (Hrvatske šume d.o.o.) in the supply channel of raw materials in whole country has a significant influence on this sector and the business of each private company.	(1)The monopolistic position of the state (Hrvatske šume d.o.o.) in the supply whole country has a significant influence on this sector and the business of each private company.

6.1.3 Identification of barriers in national/regional/local protected areas (National Parks, Nature Parks)

Legislative barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
LEGISLATIVE	(1)In National Parks there is no economic use of forests. (2)There are no obstacles, except that the new forest management plans and programs must be aligned with NATURA 2000 (ecological network).	(1)The Law on the Implementation of Decisions of the European Union on the illegal trade in wood and wood products did not solve the control system of economic operators and woodcutter traders, did not define corrective and penal provisions and a new law need to be created and adopted. (2)Ordinance on types of forestry operations, minimum conditions for their implementation and works that could be undertaken by forest owners independently imposes a number of demands for contractors (entrepreneurs who are subcontractors of Hrvatske šume d.o.o. that can not fulfill such demands, which is tolerated because of unrealistic price of procurement by Hrvatske šume d.o.o.)	(1)Lack of basic strategic documents that would completely regulate this situation (Wood Processing and Furniture Manufacturing Strategy of the Republic of Croatia 2017-2020)			(1)The Law on the Implementation of Decisions of the European Union on the illegal trade in wood and wood products did not solve the control system of economic operators and woodcutter traders, did not define corrective and penal provisions and a new law need to be created and adopted.	(1)Cogeneration plants owners are seeking to increase energy biomass production quotas. They seek a more liberal approach for permanent short roration crops.	*No obstacles found*

Administrative barriers

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
ADMINISTRATIVE	(1)Private forests are fragmented and manageent is very difficult.	(1)There is not enough private forests owners associations which could draw funds from the measures of the Rural Development Program of the Republic of Croatia.	(1)There is no obstacle, except in the NP where the commercial use of forests is not permitted			(1)There is no obstacle, except in the NP where the commercial use of forests is not permitted.	(1)There is no obstacle, except in the NP where the commercial use of forests is not permitted.	(1)There is no obstacle, except in the NP where the commercial use of forests is not permitted.

Technical barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
TECHNICAL	(1)Private forests are fragmented and it is difficult to manage them economically except through forestry associations which are mostly not organized. Internal Policy of Hrvatske šume d.o.o. related to the employment policy of cutters (low wages, fixed-term employment) is not in function of rural development and retention of population.	(1)Internal Policy of Hrvatske šume d.o.o. towards entrepreneurs in the forestry sector (unrealistically low prices of works and services) causes a continuous weakening of small businesses. (2)The internal policy of the Hrvatske šume d.o.o., which is reflected in the unrealistic policy of cutters, has an adverse impact on maintaining quality workforce (low wages, fixed-term employment).	N/A (production does not take place in a protected area)			N/A (the existing regulatory framework is inadequate and changes are in progress)	N/A (plant and distribution to public consumption are planned outside the protected area)	N/A (plant and distribution to public consumption are planned outside the protected area)

Social barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
SOCIAL	(1)The use of biomass is not enough in the function of rural development. (2)In the area of NP, the main economic branch is tourism.	(1)The use of biomass is not enough in the function of rural development	(1)Employment in this sector is sustainable and enables continuous retention of the population in the rural area.			(1)Employment in this sector is sustainable and enables continuous retention of the population in the rural area	(1)Employment in this sector is sustainable and enables continuous retention of the population in the rural area.	(1)Employment in this sector is sustainable and enables continuous retention of the population in the rural area.

Economic barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
ECONOMIC	(1)Forestry is a traditional branch of the economy in Croatia which is under the influence of politics since most forests are state-owned. In the area of NP, the main economic branch is tourism	(1)By its internal policy, Hrvatske šume d.o.o. affect the forestry sector as a whole sae as produce of biomass due to its monopolistic position.	(1)The monopolistic position of the state (Hrvatske šume d.o.o.) in the supply chain of raw materials in whole Croatia has a significant influence on this sector and the business of each private company.			(1)The monopolistic position of the state (Hrvatske šume d.o.o.) in the supply chain of raw materials in whole Croatia has a significant influence on this sector and the business of each private company.	(1)The monopolistic position of the state (Hrvatske šume d.o.o.) in the supply chain of raw materials in whole Croatia has a significant influence on this sector and the business of each private company.	(1)The monopolistic position of the state (Hrvatske šume d.o.o.) in the supply chain of raw materials in whole Croatia has a significant influence on this sector and the business of each private company.

6.1.4 Identification of barriers in NATURA 2000 protected areas (SCI, SPA)

Legislative barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
LEGISLATIVE	(1)In the NATURA 2000 areas within the National Parks there is no economic use of forests. (2)There are no obstacles, except that the new forest management plans and programs must be aligned with NATURA 2000 (ecological network). (3)There is no Law on woody Short Rotation Coppice (SRC)	(1)The Law on the Implementation of Decisions of the European Union on the illegal trade in wood and wood products did not solve the control system of economic operators and woodcutter traders, did not define corrective and penal provisions and a new law need to be created and adopted, also, law need to consider implementation solutions in NATURA 2000. (2)Ordinance on types of forestry operations, minimum conditions for their implementation and works that could be undertaken by forest owners independently imposes a number of demands for contractors (entrepreneurs who are subcontractors of Hrvatske šume d.o.o. that can not fulfill such demands, which is tolerated because of unrealistic price of procurement by Hrvatske šume d.o.o.)	(1)Lack of basic strategic documents that would completely regulate this situation (Wood Processing and Furniture Manufacturing Strategy of the Republic of Croatia 2017-2020)			(1)The Law on the Implementation of Decisions of the European Union on the illegal trade in wood and wood products did not solve the control system of economic operators and woodcutter traders, did not define corrective and penal provisions and a new law need to be created and adopted, also, law need to consider implementation solutions in NATURA 2000.	N/A (production is not implemented nor planned in the protected area)	N/A (distribution is not implemented nor planned in the protected area)

Administrative barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
ADMINISTRATIVE	(1)Private forests are fragmented and manageent is very difficult.	(1)There is not enough private forests owners associations which could draw funds from the measures of the Rural Development Program of the Republic of Croatia.	N/A (production does not take place in a protected area)			N/A (distribution does not take place in a protected area)	N/A (plant and distribution to public consumption are planned outside the protected area)	N/A (plant and distribution to public consumption are planned outside the protected area)

Technical barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
TECHNICAL	(1)Private forests are fragmented and it is difficult to manage them economically except through forestry associations which are mostly not organized. (2)Internal Policy of Hrvatske šume d.o.o. related to the employment policy of cutters (low wages, fixed-term employment) is not in function of rural development and retention of population.	(1)Internal Policy of Hrvatske šume d.o.o. towards entrepreneurs in the forestry sector (unrealistically low prices of works and services) causes a continuous weakening of small businesses. (2)The internal policy of the Hrvatske šume d.o.o., which is reflected in the unrealistic policy of cutters, has an adverse impact on maintaining quality workforce (low wages, fixed-term employment).	(1)According draft of the SRC Law may raise up to 10 hectares of plantations by the produceer. There is no answer as to whether or not it is possible to raise SRC in NATURA 2000 areas up to 10 hectares. (2)Cogeneration, pellet production and fuel wood production are in competition for the same raw material, which leads to problems in planning further development			N/A (after the adoption of the SRC Law and new Law on the Implementation of Decisions of the European Union on the illegal trade in wood and wood products did not solve the control system of economic operators and woodcutter traders will be possible to estimate the barriers as they are now unknown)	(1)Cogeneration, pellet production and fuel wood production are in competition for the same raw material, which leads to problems in planning further development.	(1)N/A (existing cogeneration is either in the industry function or at different stages of licensing and construction and it is not possible to identify real barriers)

Social barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
SOCIAL	(1)The use of biomass is not enough in the function of rural development	(1)The use of biomass is not enough in the function of rural development.	(1)Employment in this sector is sustainable and enables continuous retention of the population in the rural area.			(!)Employment in this sector is sustainable and enables continuous retention of the population in the rural area	(1)Employment in this sector is sustainable and enables continuous retention of the population in the rural area.	(1)Employment in this sector is sustainable and enables continuous retention of the population in the rural area

Economic barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
ECONOMIC	(1)Forestry is a traditional branch of the economy which is under the influence of politics since most forests are state-owned.	(1)By its internal policy, Hrvatske šume d.o.o. affect the forestry sector as a whole sae as produce of biomass due to its monopolistic position.	(1)The monopolistic position of the state (Hrvatske šume d.o.o.) in the supply channel of raw materials in whole Croatia has a significant influence on this sector and the business of each private company.			(1)The monopolistic position of the state (Hrvatske šume d.o.o.) in the supply channel of raw materials in whole Croatia has a significant influence on this sector and the business of each private company.	(1)The monopolistic position of the state (Hrvatske šume d.o.o.) in whole Croatia has a significant influence on this sector and the business of each private company.	(1)The monopolistic position of the state (Hrvatske šume d.o.o.) in the supply channel of raw materials in whole Croatia has a significant influence on this sector and the business of each private company.

6.1.5 Selection of maximum 3 key barriers in national/regional/local protected areas (National Parks, Nature Parks)

Priority	Barrier	Step of value chain (Forest management, forest harvesting & logistics, etc.)	Character (Legislative, Administrative, Technical, Social and Economic)
1st	In the area of NP there is no economic use of forests.	Forest management	Legislative
2nd	Internal policy of Hrvatske sume d.o.o. with regard to the purchase price of services from subcontractors and employment policy of cutters (low wages, fixed-term employment) threatens existing forest management and biomass production.	Forest management	Technical
3rd	Inadequate organization of private forest owners and investments in the production progress of private forests.	Biomass production	Administrative

6.1.6 Selection of maximum 3 key barriers in NATURA 2000 protected areas (SCI, SPA)

Priority	Barrier	Step of value chain (Forest management, forest harvesting & logistics, etc.)	Character (Legislative, Administrative, Technical, Social and Economic)
1st	Production of SRC	Biomass production	Legislative, Administrative
2nd	Forest plant development may be limited to certain areas within the Ecological Network (Natura 2000)	Biomass production	Legislative

6.1.7 Involvement of regional stakeholders, proposal of possible solutions and definition of operational recommendations

Definitive Priority	Barrier	Stakeholders involved in the region	Proposal of possible solutions	Operational recommendations
1st	**Internal policy of Hrvatske šume d.o.o.**	(1)Hrvatske šume d.o.o. (2) Cluster of woodcutters of Lika-Senj County (3)Local self governments of the Lika – Senj and Zadar County and regional self governent: Lika – Senj County and Zadar County	(1)Consider the policy of forming purchase prices (2)Consider employment policy of cutters (low wages, fixed-term employment) which threatens existing forest management and biomass production.	(1)Determine the right prices for forestry services (2)Increase cutters wages and allow them to work indefinitely.

Definitive Priority	Barrier	Stakeholders involved in the region	Proposal of possible solutions	Operational recommendations
2nd	**Forest management in private ownership**	(1)Private forests owners, (2)Advisory service of the Ministry of Agricutlture – local departmenst, Local self governments of the Lika – Senj and Zadar County and regional self governent: Lika – Senj County and Zadar County	(1)Establish Private-owned Forests associations	(1)Educate private forests owners and support newly established associations, align them with the Legislation related to the Law on Associations. (2)Inform stakeholders about the possibilities of forestry associations in the surrounding countries (Slovenia, Austria) and the areas where they are successful (example: Gorski Kotar area) using Rural Developent Programme measures and eligible activities/expenditures (Measure 1,2,19...).

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6.2 ITALY (SICILY)

Report is prepared by: LP - Sicily Region, Regional Department for the Rural and Territorial Development
PP1 – Municipality of Petralia Sottana
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6.2.1 Brief summary in Italian language

Pur esistendo da diversi decenni un buon quadro normativo che definisce correttamente le regole per la gestione del patrimonio forestale a livello nazionale e regionale, in Sicilia e soprattutto nelle Aree protette della Rete Natura 2000, nei Parchi e nelle Riserve naturali risulta quasi del tutto impossibile effettuare la gestione delle foreste e prelievi legnosi di qualsiasi natura e per qualsiasi fine.

Tale circostanza è imputabile a due fattori:

A. Non è mai stata attuata la pianificazione a livello aziendale e nessun gestore forestale (pubblico e privato) è in possesso dei Piani di Gestione Forestale imposti dalla Legge regionale ed occorrenti per accedere agli aiuti finanziari previsti dalla UE; ciò è imputabile all'inerzia del governo regionale che non si è curato di approvare gli strumenti occorrenti all'attuazione delle Leggi varate (basti pensare che solo nel dicembre del 2016 l'Amministrazione regionale ha provveduto all'approvazione delle linee guida per la redazione dei Piani di Gestione Forestale, previsti già dalla Legge regionale n. 16 del 6 aprile 1996).

B. Per l'autorizzazione di un qualsiasi intervento di gestione forestale e di prelievo legnoso occorrono le autorizzazioni di diverse Autorità amministrative che agiscono indipendentemente, che sono preposte alla valutazione di vincoli di natura diversa (Idrogeologico, paesaggistico e conservazione degli ecosistemi) e che, molto spesso, impiegano tempi lunghi per il rilascio delle autorizzazioni; ciò è imputabile alla carenza di personale negli uffici preposti.

6.2.1.1 Abbreviations

ARTA - Regional Department of Territory and Environment
DPR - Republic Presidential Decree

6.2.2 Inventory, classification and integration of all barriers across the forest based-bioenergy value chain

Legislative barriers

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
LEGISLATIVE	(1)Delay in the definition of regulatory instruments following the legislative provisions, e.g. the Guidelines for the Forest Management Plans, which were provided by the Regional Law .6/1996, have been approved by the regional administration in December 2016. (2)There are not clear normative references on the assessment parameters that must be considered by the public bodies in issuing the preliminary authorizations for the approval of Forest Management Plans (e.g. Forestry Corps for "hydrogeological constraints" and "certificate of compliance to the Forest Regional Plan", Superintendence of Cultural and Environmental Heritage for the "landscape constrains", Regional Department of Territory and Environment for the "Implications Assessment"). (3)The environmental legislation and the rural development policies are not coordinated with the energy legislation. (4)The lack of a single and simplified regulatory framework for the management of the forestry resources: it is necessary to reorganize the legislation on the management and utilization of forestry heritage, in order to effectively exploit the economic, environmental and social role provided by the forestry resources. (5)(Underestimate of the biomass sector within the regional energy programming, also due to the lack of knowledge on the potentialities of the forestry resources.	(1)Difficult planning of silvicultural interventions in public forests due to the regional regulation that imposes the employment mainly of seasonal workers who are employed for a fixed number of annual working days (71, 101 and 151 annual days) (2)Environmental and landscape restrictive constrains, which hinder the extraction of forest biomass. (3)Limits to the biomass extraction due to the hydrogeological constraints (Royal Decree n. 3267/1923): in the Madonie Park, the areas subjected to hydrological bound amount to about 33.700 ha, equal to 84% of the protected territory. According to art. 24, c. 4° e 5°, of the Regional Law 14/1988 planned interventions in such areas are subjected to authorization by the management body of the Park of the Madonie.	(1)Absence of incentive mechanisms for the development of wood-based biofuels industry. (2)Absence of incentive mechanisms for the certification of wood-based biofuels.	(1)Absence of incentive mechanisms for the development of wood-based biofuels industry. (2)Absence of incentive mechanisms for the certification of wood-based biofuels.	*No obstacles found*	*No obstacles found*	(1)Environmental and landscape restrictive constrains, which hinder the realization of biomass plants. (2)Lack of guarantees on the supply continuity of the raw materials necessary to fuel the biomass plants, also due to the employment of seasonal workers in the public forestry interventions.	*No obstacles found*

Administrative barriers

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
ADMINISTRATIVE	(1)Lack of adequate management models adapted to the current regional regulation/legislation. (2)Excessive bureaucracy and complicated administrative burden for approving the Forest Management Plans due to the necessary authorizations and permissions issued by different public bodies (Forestry Corps for "hydrogeological constraints", "Compliance certificate to the Forest Regional Plan", Superintendence of Cultural and Environmental Heritage for the "landscape constrains", Department for Territory and Environment for the "Incidence Assessment"). (3)Lack of certainty on the size of the public forest areas (this is due to the distribution of the related competences among different offices and the lack of digital database). (4)Lack of a price list for the drafting of forest management plans.	(1)For the authorization of whatsoever intervention of forest management and of wood extraction it is mandatory to have the clearance of different administrative bodies operating independently. (2)Long times to issue the authorizations also due to the lack of staff in the appointed offices. (3)For the public forests interventions, long administrative procedures related to the purchase of equipment, the commitment of the works, the acquisition of services and their payment.	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	(1)Lack of regulatory measures (Management Plans) guaranteeing the continuity of supply over the long term. (2) Long times to issue, by the appointed bodies, the authorizations for the installation of the biomass plants.	(1)Long times to issue, by the appointed bodies, the authorizations for the realization of the distribution network to public consumption.

Technical barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
TECHNICAL	(1)The lack of Forest Management plans deprives the forest public managers and the private owners of the data necessary (quantity and quality of extractable forest biomass) to the time and spatial programming of the annual management interventions.	(1)Manpower not always skilled and tailored to the specific needs of forestry interventions, particularly in the public forest ones where a regional regulation imposes the employment mainly of seasonal workers registered in dedicated lists of job guarantee. (2)The lack of quality or quantity data related to the existing extractable forest biomass. (3)Lack of adequate equipment and machines (with the exception of the introduction of modern chainsaws for cutting) necessary to reach the maximum intervention efficiency and consequently the lower management costs. (4)Absence of logistic platforms, storage and selection facilities. (5)Forest road system inadequate/deficient for the logging and the transport of biomass.	(1)Lack of adequate equipment and machinery necessary to reach the maximum intervention efficiency and consequently the lower management costs. (2)Lack of sales/distribution networks and after-sales services of equipment.	(1)Lack of adequate equipment and machinery necessary to reach the maximum intervention efficiency and consequently the lower management costs. (2)Lack of sales/distribution networks and after-sales services of equipment	*No obstacles found*	*No obstacles found*	(1)Lack of knowledge on the existing technologies of plants powered by residual wooden biomass, hindered the development of short production chains for the production of energy and heat at municipality local level. (2)The lack of knowledge on the quantity and quality of extractable potential biomass does not allow to plan the realization and correct sizing of plants for energy production at local level.	*No obstacles found*

Social barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
SOCIAL	(1)Insufficient awareness of the opportunities arising from the exploitation of biomass due to the lack of an institutional strategy communication.	(1)Fragmentation of private property. (2)The abandonment of forest areas by private owners due to the absence of a local market.	(1)Lack of knowledge that prevent the progress of the sector.	(1)Lack of knowledge that prevent the progress of the sector.	(1)Lack of market to regulate the use of firewood as bioenergy	*No obstacles found*	(1)The lack of knowledge of the local administrators and local population (especially in the inner areas of the island) about the existence of high technology capable to improve the self-sufficiency of energy and heat from renewable sources, have further and heavily limited the investments in the forestry sector. (2)Low planning capacity of the bodies that should be responsible for promoting the use of renewable energy, both directly and through information and dissemination programmes between local enterprises and population. (3)Poor acceptance level of the combustion plants due to the potential environmental impacts mainly related to emissions in the atmosphere produced by the plant and the biomass transport. (4)Lack of technical skills in plant management / maintenance. (5)Poor awareness of the opportunities and benefits arising from the exploitation of biomass for energy and heat production. (6)Weak systemic vision of projects (few/weak links with the agricultural and forestry sector).	(1)Lack of awareness raising initiatives on the opportunities arising from the use of biomass for heating public buildings and electricity generation. (2)Insufficient and discontinuous regional and national support to local authorities for the development / implementation of pilot projects and advisory services (Low attention to successful district heating projects).

Economic barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
ECONOMIC	(1)Lack of the prevision and programming of the economic resources for the interventions of forest management (selective thinning, spiits). The management interventions are carried out only in function of the annual public funding (regional, national and European ones) and involving mostly ordinary management interventions of infrastructures (roads, paths, forest patterns, etc.), as well as passive works for fires protection (fireboards and cleaning of the areas near the road system). (2)Lack of investment by private owners for ordinary and extraordinary silvicultural interventions due to the difficulty to access to the Aid Scheme provided by the Regional Rural Development Programme (RDP) 2014-2020, which at the moment did not published any specific announcement.	(1)High costs for the biomass extraction and transport due to the orographic characteristics of the territory and the inadequate forest road network. (2)Difficulty to access to the Aid Scheme provided by the Regional Rural Development Programme (RDP) 2014-2020, for the purchase of high technology equipment that could contribute at reducing costs.	(1)At regional level, private forestry enterprises have not been developed because of the lack of a local forestry product market. (2)Inadequate attention of the industry to the new opportunities offered by the market, such as the production for the thermal market of certified solid biofuels as pellet and woodchip	(1)At regional level, private forestry enterprises have not been developed because of the lack of a local forestry product market. (2)Inadequate attention of the industry to the new opportunities offered by the market, such as the production for the thermal market of certified solid biofuels as pellet and woodchip.	(1)At regional level, private forestry enterprises have not been developed because of the lack of a local forestry product market	*No obstacles found*	(1)Lack of a promoting policy for the forest-wood-chipped production chain. (2)Lack of guarantees on the supply continuity of the raw materials necessary to fuel the biomass plants due to the lack of a biomass energy-related market. (3)Reduction of the incentives in the renewable energy sector. (4)Inability of local authorities and enterprises to use/exploit the available funds at european, national and regional level. For research and innovation in the bioenergy sector. (5)Lack of knowledge on the potential offered by biomass, in economic terms, that is, from the point of view of its profitability, the pay-back time of the investments needed for its exploitation, the facilities and the incentives offered for its use.	(1)Lack of a local demand market of forest biofuels. (2)Significant economic commitment required by district heating systems.

6.2.3 Identification of barriers in national/regional/local protected areas (National Parks, Nature Parks)

Legislative barriers

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
LEGISLATIVE	*No obstacles found*	(1)Barriers to collect the forestry biomass resulting from the prohibition to implement random and not planned forestry interventions (Regulation of the Park of the Madonie, art. 23). 1. In the defaults of the drafting of the Forestry Management Plans the interventions are allowed: in areas D if aiming to the rewilding of deteriorated formations and to the protection of the soil; 2. in the sub-areas A4, A7, A8, B2 and B6 if aiming to develop different-aged high wood plantations .	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	(1)Limits to size and typology of the plants using biomass connected to the guidelines given in "Regulation of the Body Park of the Madonie for the installation of plants using alternative renewable energy" which envisage their realization only in area D, with a maximum power of 60 KWp intended to self-consumption (art.4).	*No obstacles found*

Administrative barriers

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
ADMINISTRATIVE	(1)Long time to get the authorizations to implement interventions of management on the forestry plantations (thinning, pruning,cutting, planting) which in the defaults of the drafting of the Forestry Management Plans are subjected to Evaluation of Environmental Impact in simplified form(Regulation of the Park of the Madonie, art. 31). (2)The principle of precaution makes difficult to obtain the required authorization for wood or forestry production restricting land management.	(1)Long procedure for the realization of a new road system for the extraction and transportation of the biomass, which has to be subjected to Evaluation of Environmental Impact (Regulation of the Park of the Madonie, art. 31, Cat.A). (2)Long time to get the authorization for the interventions of extraordinary maintenance and the adjustment of various infrastructure for the extraction and the transportation of the biomass, which have to be subjected to Evaluation of Environmental Impact in simplified form(Regulation of the Park of the Madonie, art. 31, Cat.B).	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	(1)Lack of synergies and coordination among the different administrative levels of the territories included in the protected areas. (2)Long procedure to get the authorizations for the realization of plants using biomass (allowed only in area D), which have to be subjected to Evaluation of Environmental Impact in simplified form (Regulation of the Park of the Madonie, art. 31, Cat.A).	(1)Long procedure to get the authorizations for the realization of distribution networks, which have to be subjected to Evaluation of Environmental Impact (Regulation of the Park of the Madonie, art. 31, Cat.A).

Technical barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
TECHNICAL	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*

Social barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
SOCIAL	(1)Reticence to use biomass in protected areas	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	(1)Scarce acceptance of the plants using biomass due to the landscape and environmental impacts incompatible with the characteristics of the protected area.	*No obstacles found*

Economic barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
ECONOMIC	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*

6.2.4 Identification of barriers in NATURA 2000 protected areas (SCI, SPA)

Legislative barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
LEGISLATIVE	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*

Administrative barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
ADMINISTRATIVE	(1)The principle of precaution makes difficult to obtain the required authorization for wood or forestry production restricting land management.	(1)Long time to get the authorization for the extraction of the biomass by means of extraordinary forestry interventions, which have to be subjected to Evaluation of Environmental Incidence (DPR 357/97 and Decree ARTA 30th March 2007). (2)Long time to get the authorizations to implement interventions of extraordinary maintenance and adjustment of the forestry road system for the activities of extraction and transportation of the biomass, which have to be subjected to Evaluation of Environmental Incidence (DPR 357/97 and Decree ARTA 30th March 2007).	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	(1)Lack of synergies and coordination among the different administrative levels of the territories included in the protected areas. (2)Long procedure to get the authorizations for the realization of new plants using biomass, which have to be subjected to Evaluation of Environmental Incidence (DPR 357/97 and Decree ARTA 30th March 2007).	(1)Long procedure to get the authorizations for the realization of distribution networks, which have to be subjected to Evaluation of Environmental Incidence (DPR 357/97 and Decree ARTA 30th March 2007).

Technical barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
TECHNICAL	*No obstacles found*	(1)The forestry interventions aiming to collect the biomass are subjected to the respect of the guidelines envisaged in the Management Plans for each forest type (Managerial Actions and Strategies of the Management Plans). (2)Presence of protected habitats of flora and fauna of community and primary interest (Regulation 'Habitat'92/43/CEE; Regulation 'Birds'2009/147/CE) which could suffer negative impacts from the developing of new tracks for the extraction of the biomass	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	(1)Presence of protected habitats of flora and fauna of community and primary interest (Regulation 'Habitat'92/43/CEE; Regulation 'Birds'2009/147/CE) which could suffer negative impacts from the realization of plants using biomasses.	(1)Presence of protected habitats of flora and fauna of community and primary interest (Regulation 'Habitat'92/43/CEE; Regulation 'Birds'2009/147/CE) which could suffer negative impacts from the realization of distribution networks.

Social barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
SOCIAL	(1)Reticence to use biomass in protected areas.	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*

Economic barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
ECONOMIC	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*

6.2.5 Selection of maximum 3 key barriers in national/regional/local protected areas (National Parks, Nature Parks)

Priority	Barrier	Step of value chain (Forest management, forest harvesting & logistics, etc.)	Character (Legislative, Administrative, Technical, Social and Economic)
1st	Barriers to collect the forestry biomass resulting from the prohibition to implement random and not planned forestry interventions (Regulation of the Park of the Madonie, art. 23). In the defaults of the drafting of the Forestry Management Plans the interventions are allowed: 1. in areas D if aiming to the rewilding of deteriorated formations and to the protection of the soil; 2. in the sub-areas A4, A7, A8, B2 and B6 if aiming to develop different-aged high wood plantations.	Forest harvesting & logistics	Legislative.
2nd	Limits to size and typology of the plants using biomass connected to the guidelines given in "Regulation of the Body Park of the Madonie for the installation of plants using alternative renewable energy" which envisage their realization only in area D, with a maximum power of 60 KWp intended to self-consumption (art.4).	Thermal/electrical energy conversion	Legislative.
3rd	Scarce acceptance of the plants using biomass due to the landscape and environmental impacts incompatible with the characteristics of the protected area.	Thermal/electrical energy conversion	Social.

6.2.6 Selection of maximum 3 key barriers in NATURA 2000 protected areas (SCI, SPA)

Priority	Barrier	Step of value chain (Forest management, forest harvesting & logistics, etc.)	Character (Legislative, Administrative, Technical, Social and Economic)
1st	Long time to get the authorization for the extraction of the biomass by means of extraordinary forestry interventions, which have to be subjected to Evaluation of Environmental Incidence (DPR 357/97 and Decree ARTA 30th March 2007).	Forest harvesting & logistics.	Administrative.
2nd	Lack of synergies and coordination among the different administrative levels of the territories included in the protected areas	Thermal/electrical energy conversion	Administrative.
3rd	Reticence to use biomass in protected areas.	Forest management.	Social.

6.2.7 Involvement of regional stakeholders, proposal of possible solutions and definition of operational recommendations

Definitive Priority	Barrier	Stakeholders involved in the region	Proposal of possible solutions	Operational recommendations
1st	**Barriers to collect the forestry biomass resulting from the prohibition to implement random and not planned forestry interventions (Regulation of the Park of the Madonie, art. 23).** **In the defaults of the drafting of the Forestry Management Plans the interventions are allowed:** **1. in areas D if aiming to the rewilding of deteriorated formations and to the protection of the soil;** **2. in the sub-areas A4, A7, A8, B2 and B6 if aiming to develop different-aged high wood plantations.**	(1)Local/regional public authorities. (2)Relevant regional and municipal departments and companies. (3)Higher education and research. (4)Professional orders/associations and technicians. (5)Management bodies of the Protected area	(1)Remove the restrictions imposed by the current regulation through the adoption of specific planning tools for the forestry interventions.	(1)Drawing up and approval of the Forest Management Plans foreseen by the current law in order to allow the execution of the necessary forestry interventions in the Park areas.

Definitive Priority	Barrier	Stakeholders involved in the region	Proposal of possible solutions	Operational recommendations
2nd	**Long time to get the authorization for the extraction of the biomass by means of extraordinary forestry interventions, which have to be subjected to Evaluation of Environmental Incidence (DPR 357/97 and Decree ARTA 30th March 2007).**	(1)Local/regional public authorities. (2)Relevant regional and municipal departments and companies. (3)Higher education and research. Professional orders/associations and technicians. (3)Management bodies of the Protected area.	(1)Simplification of the procedures for the authorization of the forestry interventions in order to ensure the timely release of permissions and ensure continuity in biomass supply.	(1)Drawing up and approval of the Forest Management Plans that, overtaken the Evaluation of Environmental Incidence, allow the execution of all forestry and infrastructure interventions without the need for further authorizations.

Definitive Priority	Barrier	Stakeholders involved in the region	Proposal of possible solutions	Operational recommendations
3rd	**Reticence to use biomass in protected areas.**	(1)Higher education and research. (2)Professional orders/associations and technicians. (3)Local/regional public authorities. (4)Sectorial agencies. (5)Relevant regional and municipal departments and companies. (6)Management bodies of the Protected area.	(1)Disseminate in the public opinion the basic principles of forestry, with the aim of protecting and enhancing the forest resources through the implementation of interventions aimed at favouring the natural renewal of forest and the creation of forest formations appropriate for local climatic and environmental conditions. (2)Raise awareness of the local community on the benefits of sustainable forest management aimed at the biomass exploitation for energy purposes.	(1)Dissemination of the obtained results and the best practices adopted in similar interventions carried out at European / national / regional level. (2)Identification of pilot areas in which can be carried out forestry interventions, monitoring and disseminating the results obtained (3)Dissemination and information activities on the environmental benefits due to the energy production from biomass short chains

Definitive Priority	Barrier	Stakeholders involved in the region	Proposal of possible solutions	Operational recommendations
4th	**Limits to size and typology of the plants using biomass connected to the guidelines given in "Regulation of the Body Park of the Madonie for the installation of plants using alternative renewable energy" which envisage their realization only in area D, with a maximum power of 60 KWp intended to self-consumption (art.4).**	(1)Local/regional public authorities. (2)Sectorial agencies. Interest groups including NGOs. (3)Enterprise and SME. (4)Professional orders/associations and technicians. (5)Financial partners. (6)Management bodies of the Protected area.	(1)Review of the Regulation of the Madonie Park, e.g. In the case of relevant interest facilities/buildings (public and/or private) in area D allowing the installation of plants with power greater than 60 KWp for self-consumption.	(1)Establishment of a technical panel for reviewing the Regulation of the Park as concern the installation of power plants. (2)Carrying out pilot plants (identification of relevant interest buildings/facilities, public and/or private), estimation of their energy needs, design and installation of plants).

Definitive Priority	Barrier	Stakeholders involved in the region	Proposal of possible solutions	Operational recommendations
5th	**Lack of synergies and coordination among the different administrative levels of the territories included in the protected areas.**	(1)Local/regional public authorities. (2)Sectorial agencies. (3)Relevant regional and municipal departments and companies. (4)Infrastructure and service public providers. (5)Management bodies of the Protected area.	(1)Awareness raising and involvement of all local authorities responsible for issuing permits linked to the biomass sector.	(1)Establishment of periodic technical panels among the involved local authorities in order to highlight each other's competences and define the operating modalities for the issuing of the permissions.

Definitive Priority	Barrier	Stakeholders involved in the region	Proposal of possible solutions	Operational recommendations
6th	**Scarce acceptance of the plants using biomass due to the landscape and environmental impacts incompatible with the characteristics of the protected area.**	(1)Higher education and research. (2)Professional orders/associations and technicians. (3)Local/regional public authorities. (4)Sectorial agencies. (5)Relevant regional and municipal departments and companies. (6)Enterprise and SME. (7)Management bodies of the Protected area.	(1)Spread the knowledge of new technologies and of mitigation measures that can be adopted in order to reduce the impacts on the environment and landscape deriving from biomass plants.	(1)Dissemination and information activities addressed to the local community regarding the new technologies and the mitigation measures that can be adopted to reduce the impacts on the environment and landscape deriving from biomass plants.

6.2.8 References

Framework of national, regional and local policies

Forests sector

- Royal Decree 3967/1877;
- Law 277/1910 ("Luzzatti Law");
- Royal Decree Law 3267/1923 ("Serpieri Law");
- Law 431 ("Galasso Law");
- Law 752/1986;
- Regional Law 11/1989;
- Regional Law 16/1996;
- Legislative Decree 227/2001;
- Law 296/2006.

Energy sector

- *National Plan of Bioenergy Sector* (nPBS), Ministry of Agricultural, Food and Forests Policies (MiAFFP), 2014;
- *National Energy Strategy* (nES), Ministry of the Economic Development, 2013;
- *Regional Decree of 18 July 2012, n. 48* By decree of 18 July 2012, n. 48 of the President of the Sicilian Region, the "Regulations for the implementation of Art. 105, paragraph 5 of Law 12 May 2010, n. 11" has been published in the Sicilian Official Gazette no. 34 of 17 August 2012;
- *Sustainable Energy Action Plans (Covenant of Mayors)* of the municipalities, 2011;
- *Regulation for the installation of RES plants in the Park of Madone*, examined and approved by the Scientific-Technical Committee on 2010 and by the Council of the Park on 2011;
- *National Renewable Energy Action Plan*, Ministry of the Economic Development, 2010;
- Legislative Decree n. 28/2011 (adoption of Directive 2009/28/EC);
- Ministerial Decree 2 March 2010 "Implementation of law 27 December 2006, n. 296, about the traceability of the biomasses for the production of electricity" of the Minister for the Agricultural and Forestry Policies (MIPAAF), published on the Official Journal General Series n. 103 of 05/05/2010;
- *Regional Environment Energy Plan of Sicily* (REEPS) approved by Regional Council Decision of 3 February 2009, n. 1, 2004;

Development policies

- *National Rural Development Programme 2014-2020*, approved by the European Committee with decision (C2015)8312 del 20/11/2015;
- *Regional Rural Development Programme 2014-2020 of the Region Sicily*, approved by the European Commission on 24 November 2015;
- Regional Operational Programme 2014-2020, approved by the European Commission with Decision C (2015) 5904 of 17th August 2015 and adopted by the Regional Council with Resolution no. 267 of 10th November 2015;
- Ministry of the Environment and Protection of Land and Sea, National Operational Programme of Technical Assistance and System Actions 2000-2006 (PON ATAS 2000-

2006). Exploitation of renewable energy sources within the protected areas of the Objective 1 Zone. Biomass conversion for energy. Guidelines, June 2003.

Environmental and Landscape reference policies Current Plan at local level (study area)

- *Management Plan "Monti Madonie"*, approved by Regional Goveverment Decision 183/2012;

- *Management Plan "Complesso calanchivo di Castellana Sicula"*, approved by Regional Goveverment Decision 534/2010);

- *Framework Plan for the Hydrological Structure* (hydrological and geomorphological risk management)*;*

- Republic President Decree (RDP) n.357/1997, as changed from the RDP n. 120/2003 (implementation of the EU directive "Habitat");

- Legislative Decree n. 42/2004 (environmental and landscape issues);

- Royal Decree n. 3267/1923 (hydrological and forest issues);

- *Landscape Regional Plan* (environmental and landscape issues), under elaboration;

- *Regulation of Regional Natural Park of Park of Madonie*, under elaboration.

Bibliography

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- PROFORBIOMED Project "*Promotion of residual forest biomassin the Medisterranean basin*", co-funded by INTERREG MED Programme 2007-13.

Relevant projects

- AGRIFORENERGY 2, *Promoting and securing the production of biomass from forestry and agriculture without harming the food production*, funded under IEE-INTELLIGENT ENERGY EUROPE, 2009 - 2012

- *BIO-EN-AREA Project*, included in the scope of the European program INTERREG IVC, that aims at the sustainable development of renewable energies through the exchange and transfer of experiences and good practices between European partners. The BIO-EN-AREA project plans to support the definition of methodologies and tools, developed through local action plans, which can become a good example for the sustainable development of bio-energy in the different local environments (http://www.bioenarea.eu);

- *BIOEUPARKS Project "Developing an efficient and sustainable biomass supply chain in 5 European Nature Parks"*, co-funded by IEE Altener Programme

- BIOMASS TRADE CENTRE II Project, co-funded by IEE-INTELLIGENT ENERGY EUROPE, 2011 - 2014

- CNR Ivalsa (National Council for Research - Institute for the exploitation of wood and tree species) of San Michele all'Adige (TN), "*Guidelines for the development of a forest chips supply chain model. Developing the forest-wood-energy chain through the reinforcement of forest owners associations*" GAL Prealpi Dolomiti, Valle D'aosta, GAL Garfagnana Ambiente e Sviluppo, GAL Leader Siena, GAL Eurochianti, Rural Conwy, GAL Appennino Bolognese, Ed. Filò 2007. Produced within the scope of the transnational cooperation project "Development of a Forest-Wood-Energy chain" co-financed by the European Union, F.E.A.O.G. Fund, section for orientation – Leader Plus Programme.

- *ResilForMed - RESILienza al cambiamento climatico nelle FOReste MEDiterranee*, funded under LIFE programme ENV IT 215;

6.3 SLOVENIA

Report is prepared by: Jevšenak Jernej (GIS), Jemec Tina (GIS), Krajnc Nike (GIS), Mahne Dunja (RRA Zeleni kras)

6.3.1 Brief summary in Slovene language

Zavarovana območja predstavljajo posebej zahtevno obravnavo, saj se tukaj prepletajo interesi varstva narave in potrebe po izkoriščanju lesne surovine. Najpomembnejše omejitve v zavarovanih območjih, ki izhajajo iz zavarovanja, so časovne in tehnološke omejitve dela v gozdu ter omejitve pri posegih v gozdni prostor, npr. pri gradnji gozdnih cest. Rešitev vidimo v informiranju zasebnih lastnikov gozdov ter skupnem iskanju možnih rešitev.

Mobilizacijo gozdne lesne biomase in vzpostavljanje gozdnih lesnih verig v veliki meri ovirajo razdrobljena gozdna posest in neaktivni lastniki. Rešitev vidimo v ustanovitvi lokalnega društva lastnikov gozdov. V okviru društva bodo lastniki bolje povezani in informirani o možnostih skupinske sečnje, skupinske gradnje gozdnih cest ipd. Preko društva se bodo povečale možnosti dolgoročnega sodelovanja vzdolž gozdnih lesnih verig v zavarovanem območju.

Predstavniki parkov so izpostavili slabo vključenost v pripravo gozdnogospodarskih načrtov (GGN). Vsekakor so upravljavci parkov dobro obveščeni o posebnostih območja in bi s svojim znanjem lahko prispevali h kvalitetnejšim načrtom. Predlagali bomo organizacijo delavnic s strani Zavoda za gozdove Slovenije, na katerih bodo lahko predstavniki parkov podali konkretne vsebinske predloge.

6.3.1.1 Abbreviations

FMP – Forest Management Plans
GIS – Slovenian Forestry Institute
RRA – Regional Development Agency
SFS – Slovenian Forestry Service

6.3.2 Inventory, classification and integration of all barriers across the forest based-bioenergy value chain

Legislative barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
LEGISLATIVE	(1)Goals from Forest management plans are not realised	(1)Decrease of investments in sylvicultural measures and forest infrastructure.	(1)Low subsidy rate for modern biomass boilers (2)No system for trace of origin of raw material (3)Strict legislation about disposal of ashes	(1)Low subsidy rate for modern biomass boilers (2)More stringent legislation about emissions	(1)Low subsidy rate for modern biomass boilers (2)Strict legislation about particle emissions	(1)Insufficient control over producers and distributers of biofuels	(1)The legally prescribed price calculation of heat (2)Changing rules for pricing of green electricity (3)The problem of existing concessions for the sale of heat	(1)Long legislative procedures for obtaining permits for establishment of district heating systems

Administrative barriers

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
ADMINISTRATIVE	(1)The procedure of accepting forest management plans are complex	(1)Long and complex procedures for obtaining permissions to build forest roads. (2)Low level of interest for joint investments in forest infrastructure.	(1)Quality standards are not legally binding	(1)The competitiveness of natural gas (2)Quality standards are not legally binding	(1)Local market	(1)Non-transparent way of buying and selling wood	(1)Hesitation in decision-making of local communities to switch to wood fuel heating systems (2)Significant impact of local communities in determining the price of heat	(1)Complex administrative procedures for obtaining permits for establishment of district heating systems

Technical barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
TECHNICAL	(1)The sylvicultural measures in young stands are not sufficient (2)Many remote forest do not have adequate forest infrastructure	(1)Small forest parcels, which result in higher harvesting costs (2)In case of forest disasters, the amount of forest workers is not sufficient. (3)Insufficient equipment, skills and knowledge of private forest owners. (4)Many unsuitable terrains for using harvester and forwarder	(1)Large storage room is needed (2)Problems with dust while manipulating (3)The quality of woodchips is questionable- no system for ensuring woodchips quality.	(1)Use of boilers which are "homemade" or rebuild from old oil boiler (2)Constant quality of pellets is not guaranteed	(1) "Old fashion" systems for heating (low efficiency and high emissions) (2)Emissions of dust particles (3)The problem of using obsolete/ contaminated wood. (4)Great offer of outdated technologies on market	(1)Many small providers (2)There is no quality assurance system for bio fuels (3)There are no distribution / sales centres for wood fuels	(1)Not enough knowledge on modern systems (2)Lack of information about funding opportunities (3)The negative impact of bad projects / practices	(1)Dispersed settlements - large costs of building heating system (2)Lack of information for end-users - distrust

Social barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
SOCIAL	(1)Unconnected forest owners (2)Small forest owners are not interested in active forest management	(1)Inactive private forest owners. (2)Lack of trust from private forest owners. (3)Hard - labour intensive work (4)Fragmentation of timber for sell (5)Low level of trust for joint investments (eg. rads)	(1)Lack of knowledge for manufacturing woodchips (2)High number of small producers (3)Lack of tradition (4)Lack of examples of good practice	(1)Lack of knowledge for manufacturing pellets (2)High number of small producers – questionable quality (3)Unfamiliarity with modern technologies	(1)Hard - labour intensive work (2)The dirty and time consuming burning (3)Unfamiliarity with modern technologies	(1)Distrust of foreign suppliers (2)Lack of connectivity of small producers (3)Longer transport distances (in the absence of local distribution centres)	(1)Distrust in joint projects (2)Distrust in foreign investors (3)Distrust in local authorities	(1)Distrust in long-term heating costs (in district heating systems)

Economic barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
ECONOMIC	(1)The high cost of sylvicultural measures (in the younger stages of development) (2)Misunderstanding the importance of long-term sylvicultural measures (3)Lack of awareness of funding opportunities for the integration of joint appearance on the market	(1)The high cost of production in the fragmented forest estates (2)The high cost of infrastructure construction (3)Due to the lower concentration of timber transport costs are higher	(1)High investment costs for private owners to buy equipment. (2)Lack of useful information for investors (3)Low return rates for investments.	(1)High investment costs for private owners to buy equipment. (2)High energy costs – competitiveness with gas (3)Lack of useful information for investors and users as well	(1)High investment costs for private owners to buy modern boilers. (2)Lack of useful information for users	(1)High distribution cost for smaller quantities (2)Non-transparent market	(1)Unfamiliarity with the system of buying green electricity (2)Restrictions on pricing of heat in district heating systems (3)Unfamiliarity with the possibilities of financing investments	(1)The price of connection to the system can be high (2)Lack of knowledge of the system for a fixed and variable components of the cost of heating

6.3.3 Identification of barriers in national/regional/local protected areas (National Parks, Nature Parks)

Legislative barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
LEGISLATIVE	(1)There is no specific legislation that restricts management in protected areas (2)Forest management plans (FMP) only contain guidelines for management that are too general (3)Managers of protected areas are not directly included in the process of formation of FMP. (4)There are no specific management plans for protected areas (5)Within protected areas, it is not possible to isolate individual areas from forest management (6)Difficult (sometimes impossible) to change the land use.	(1)There is no specific legislation which restricts the harvesting of timber. (2)There are no explicit provisions on the use of environmentally friendly technology of wood harvesting. (3)Difficult construction of new forest roads. (4)It is prohibited to establish monocultures. (5)Conservation of rare habitat types. (6)Lack of competence of managers of protected areas in the enforcement regime of the forest management.	(1)There is no specific system of incentives for modern boilers in protected areas	(1)There is no specific system of incentives for modern boilers in protected areas	(1)There is no specific system of incentives for modern boilers in protected areas	*No obstacles found*	*No obstacles found*	*No obstacles found*

Administrative barriers

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
ADMINISTRATIVE	(1)By selecting the cheapest contractor for harvesting leads to poor performance of work and damage to part of nature.	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	(1)There are no special incentives for the development of local wood biomass chains - for the supply of woody fuel to local users	*No obstacles found*	*No obstacles found*

Technical barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
TECHNICAL	(1)The problem of afforestation with non-indigenous tree species in certain habitats	(1)There is no coordinated planning across the entire supply chain (2)With the use of inappropriate technologies in some areas (e.g. mechanical cutting), undergrowth is destroyed (3)There is no limit to the excessive export of logging residues	(1)There is not enough information for potential users	(1)There are no local producers within the protected area	(1)Firewood is traditionally used, but outdated technology prevails	(1)Protected areas are not large enough to represent a comprehensive market	*No obstacles found*	(1)Lack of information about the opportunities and advantages of collective heating among residents of protected areas

Social barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
SOCIAL	(1)Dispersed forest ownership (2)Ignorance of Natura 2000 species and habitat types from landowner's perspective.	(1)Unfamiliarity, lack of information and forest owners about the limits and possibilities of forest harvesting.	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	(1)Low level of knowledge about wood biomass production chains among park administration	(1)Cooperation and mutual trust between the actors is relatively low

Economic barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
ECONOMIC	(1)No refunds due to limitations in management	(1)Restrictions increase the cost of timber harvesting (2)Limits for driving rise manipulation costs	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	(1)Limited financial resources for new investments in systems of biomass heating	*No obstacles found*

6.3.4 Identification of barriers in NATURA 2000 protected areas (SCI, SPA)

Legislative barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
LEGISLATIVE	(1)Restrictions resulting from the management plan of the Natura 2000 areas are part of the FMP (2)There are no special management plans for Natura 2000 areas (3)Failure to comply with the general rules – it would be necessary to make a Natura 2000 requirements for certain areas of the works (4)Lack of competence of managers of protected areas in the enforcement regime (5)Conservation of forests has a higher priority than the production of biomass (6)Difficulties in conservation of certain species not listed among the N2000 series.	(1)Limitations in obtaining permits (time, technology limitations, restrictions on road construction) (2)Conservation of rare habitat types	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*

Administrative barriers

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
ADMINISTRATIVE	(1)Selecting the cheapest contractor for harvesting leads to poor performance of work and damage to part of nature.	(1)Usually there is little manoeuvre room for the establishment of new production chains	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*

Technical barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distributio n	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
TECHNICAL	(1)Restrictions on technologies due to the nature conservation (2)The problem with afforestation with non-native tree species at certain sites	(1)Additional ecological guidelines for N2000 qualifying species. (2)With the use of inappropriate technologies in some areas (e.g. mechanical cutting), undergrowth is destroyed (3)There is no limit to the excessive export of logging residues	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*

Social barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
SOCIAL	(1)Unfamiliarity with N2000 species and habitat types from the landowner's perspective. (2)Unfamiliarity with the benefits of alternative tree species to spruce (eg. Beech tree) from the perspective of forest owners.	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*

Economic barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
ECONOMIC	*No obstacles found*	(1)Restrictions in the choice of technology increases the cost of wood harvesting	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*

6.3.5 Selection of maximum 3 key barriers in national/regional/local protected figures (National Parks, Nature Parks)

Priority	Barrier	Step of value chain (Forest management, forest harvesting & logistics, etc.)	Character (Legislative, Administrative, Technical, Social and Economic)
1st	The managers of protected areas are not sufficiently involved in the preparation of forest management plans (FMP)	Forest planning	Legislative and Administrative barrier
2nd	The fragmented ownership of forests and lack of interest in the cooperation	Forest harvesting	Social barrier
3rd	Poor integration of stakeholders along the biomass wood chain	Forest harvesting	Social and Technical barrier

6.3.6 Selection of maximum 3 key barriers in NATURA 2000 protected areas (SCI, SPA)

Priority	Barrier	Step of value chain (Forest management, forest harvesting & logistics, etc.)	Character (Legislative, Administrative, Technical, Social and Economic)
1st	The lack of involvement of the managers of protected areas in determining the regime to Natura 2000 areas, which are part of the FMP.	Forest planning	Legislative barrier
2nd	Restrictions on the construction of forest roads and wood production	Forest harvesting	Administrative barrier

6.3.7 Involvement of regional stakeholders, proposal of possible solutions and definition of operational recommendations

Definitive Priority	Barrier	Stakeholders involved in the region	Proposal of possible solutions	Operational recommendations
1st	**The fragmented ownership of forests and lack of interest in the cooperation**	(1)Private forest owners (2)Slovenia Forest Service	(1)The organization and the establishment of associations of forest owners	(1)Managers of the park organize a workshop for private forest owners and actively participate in the establishment of the association.

Definitive Priority	Barrier	Stakeholders involved in the region	Proposal of possible solutions	Operational recommendations
2nd	**Poor integration of stakeholders along the biomass wood chain**	(1)Private forest owners (2)Manufacturers of wood fuels (3)Forest companies for harvesting (4)The managers of protected areas	(1)Organization of stakeholders' meetings and an agreement on active cooperation and the mutual exchange of information.	(1)Manager of the protected area organize a meeting of stakeholders and represent them the benefits of long-term cooperation. (2)Preparation of an agreement among stakeholders about the way of exchanging information.

Definitive Priority	Barrier	Stakeholders involved in the region	Proposal of possible solutions	Operational recommendations
3rd	**Restrictions on the construction of forest roads and wood production**	(1)The managers of protected areas (2)Private forest owners Slovenia Forest Service	(1)Meetings with forest owners about the possible technological solutions	(1)Park manager organizes a meeting with the private forest owners and deliver relevant information

Definitive Priority	Barrier	Stakeholders involved in the region	Proposal of possible solutions	Operational recommendations
4th	**The lack of involvement of the managers of protected areas in determining the regime to Natura 2000 areas, which are part of the FMP.**	(1)The managers of protected areas (2)Institute of the Republic of Slovenia for Nature Conservation (3)Slovenia Forest Service	(1)Participatory involvement of managers of protected areas in the process of FMP formation.	(1)SFS organizes a workshop during the formation of FMP

Definitive Priority	Barrier	Stakeholders involved in the region	Proposal of possible solutions	Operational recommendations
5th	**The managers of protected areas are not sufficiently involved in the preparation of forest management plans (FMP)**	(1)The managers of protected areas (2)Slovenia Forest Service	(1)Participatory involvement of managers of protected areas in the process of FMP formation.	(1)SFS organizes a workshop during the formation of FMP

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6.4 SPAIN (VALENCIA)

Report is prepared by:

- PP5: Association of Forest Municipalities of the Comunitat Valenciana (AMUFOR)
- PP6: Valencia Official Chamber of Commerce, Industry, Services and Shipping (CCV)

6.4.1 Brief summary in Spanish language

Actualmente, existen elevadas restricciones que dificultan el desarrollo del sector forestal, este hecho se refleja al ver los escasos porcentajes de montes gestionados y/o bajo ningún instrumento de gestión en la Comunitat Valenciana (CV).

España es el país que mayor superficie protegida aporta a la Red Natura 2000 (RN2000), representando casi el 30% de la superficie total estatal (media europea 20%). En el caso del suelo forestal de la CV el 78 % está en zonas ZEPA y el 68,18% en LIC. Por ello, la RN2000 se podría considerar como una oportunidad para el sector. Sin embargo, la realidad es que existen elevados obstáculos que dificultan a los propietarios de los montes, especialmente privados, poder realizar una gestión activa debido a la ausencia de sinergia entre la gestión forestal sostenible y la correspondiente a la de espacios protegidos; existen diferentes figuras de protección superpuestas con diferentes instrumentos de gestión. A ello se le suma la fragmentación de la propiedad que incrementa la complejidad de actuación forestal y la visión conservadora sin intervención forestal.

La presencia de figuras de protección es perfectamente compatible con la ordenación y el aprovechamiento sostenible de nuestros montes; no hay gestión sin conservación ni conservación sin gestión. La necesidad de una simplicación administrativa en la redacción y aprobación de los proyectos de ordenación forestal, la optimización en la logística que conecta los eslabones de la cadena de valor y la mejora tecnológica de los sistemas de producción de energía es primordial para salvar las principales barreras existentes en la CV.

6.4.1.1 Abbreviations

- CV: Comunitat Valenciana
- SPA: Special Protection Area
- SCI: Site of Community Importance
- SAC: Special Area of Conservation
- VAT: Value Added Tax

6.4.2 Inventory, classification and integration of all barriers across the forest based-bioenergy value chain

Legislative barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
LEGISLATIVE	(1)The environmental legislation and the rural development are not coordinated with the energy legislation. Furthermore, an excessive normative exists which follows the '80 normative, difficulting the forest management; the Territorial Management System is out-of-date. (2)Lack of forest regulation. (3)Difficulties derived of the own forest law. (4)High restrictions and prohibitions due to protection figures (e.g. Natura 2000 or Natural Parks) which block the civil rights of the forest owners. (5)Not effective application in the measure 8, submeasure 8.5[2] of the EAFRD 2014-2020.	(1)There is a regulation which forbids working in emergency alert 3 (the most restrictive level: extreme). In some cases, there is not a real risk for forest fires and automatically the emergency level pass from 2 to 3. (2) Excessive normative which difficulties the use of forest biomass.	(1)Unfavourable VAT in regards with the other EU countries.			*No obstacles found*	(1)Real Decreto ley 1/2012[3] (27 enero 2012) – Royal Decree-Law 1/2012 (27 January 2012 – affects negatively to the profitability of a CHP plants at local level, having a risk in the final objective of the elimination of the tarif deficit.	*No obstacles found*
			(1)Lack of interministerial coordination for an industrial sector which is between competencies of different Ministers.	*No obstacles found*	(1)Lack of normative to classify firewoods.			

[2] Submeasure 8.5: investments improving the resilience and environmental value of forest ecosystems.
[3] Real Decreto-ley 1/2012, de 27 de enero, al Decreto-ley 1/2012, de 27 de enero, por el que se procede a la suspensión de los procedimientos de preasignación de retribución y a la supresión de los incentivos económicos para nuevas instalaciones de producción de energía eléctrica a partir de cogeneración, fuentes de energía renovables y residuos (Royal Decree-Law 1/2012, 27 January 2012, suspending the pre-allocation of remuneration procedures and eliminating the economic incentives for new installations for the production of electricity from cogeneration, renewable energy sources and waste). https://www.boe.es/buscar/doc.php?id=BOE-A-2012-1310

Administrative barriers

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
ADMINISTRATIVE	(1)Lack of coordination between different departments and actors of the Generalitat Valenciana, existing a complexity scenario also due to the overlapping of competences, blocking their services. All affects to the administered people or project promoter who cannot exercise their rights. (2)Long time to approve forest management project and complexity to elaborate them. Moreover, in the forest administration there are a lot of management projects expired which need to be reviewed and updated to be implemented. (3)High number of administrative procedures to obtain authorizations managed by different departments of the administration; all these procedures are increased in the protected areas as Natura 2000.	(1)Difficulties to obtain grants due to their administrative procedures which block the starting of the forest harvesting activities. (2)Lack of transparency in the information regarding to the auctions and also with the foreseen volumes; carrying out a high accumulation of lots to guarantee the machine efficiency. (3)Lack of priority in the biomass supply in regards to the forest ownership (public and private). (4)Lack of execution and design of the forestry works due to a lack of normative applications (logistics and extraction).	(1)Procedures to obtain the label of traceability and the guarantee quality.	*No obstacles found*	(1)Market is not so much transparent; more people could be beneficiary of this product.	*No obstacles found*	(1)The use of biomass as bioenergy has some difficulties in regard to the contracts between the owner of the plant and the forest owners to guarantee a long term, the continuous supply of raw material for the operation of the biomass plants. (2)Lack of coordination between administrations to articulate a policy which promote the use of bioenergy. (3)Increase of the number of procedures to start the activity of an industrial plant/facility.	*No obstacles found*

Technical barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
TECHNICAL	(1)The forest ownership is atomized and fragmented. (2)Lack of technical formation of the forest owners. (3)Dispersion and seasonality of the agricultural biomass (bi-annual pruning).	(1)Lack of reception centres of biomass. (2) Scarcity and precarious state of infrastructures (forest roads) to carry out forest works. (3)Complexity in the situation of large forest harvesting loading platform. (4)Lack of coordination between forest owners and agricultural cooperatives; a strong tradition exists to make agricultural burnings.	(1)Availability of biofuels, seasonality and variability. (2)The industrial infrastructure of recovered wood managers in the CV is greatly reduced.			(1)Low technological level in the distribution, consumption and transformation of bioenergy products. (2)Limited efficiency due to the necessity to have a homogeneity biomass mix for the gasification procedures.		
			(1)Problems to the compaction and the diversification of components (e.g. chemical composition: heavy metals, different heating power). (2)The woodchips are not classified as is needed.	(1) Difficulty to implement the normalized quality labels (EN+). (2)Difficulty for mixing different types of biomass in the pellet production.	(1)Lack of firewood management.	(1)Availability of the biofuels.	(1)The delay in the execution of forest works (e.g. cleaning) due to extreme meteorological events (e.g. strong winds, snow accumulation) leads to an excessive accumulation of biomass and therefore, the existent bioenergy facilities (boilers) are unable to assimilate all forest biomass. (2)Most of the heat equipments are imported and there is a difficulty in performing maintenance/technical tasks. (3)Limited space for the facilities. (4)Lack of assessment to determine the most suitable biofuels for each kind of boiler regarding its necessity. (5)In the case of cooling systems there is a lack of experience in regards to the absorption units and its maintenance.	*No obstacles found*

Social barriers:

<table>
<tr><th rowspan="2"></th><th rowspan="2">Forest management</th><th rowspan="2">Forest harvesting & logistics</th><th colspan="3">Biofuels industry</th><th rowspan="2">Distribution</th><th rowspan="2">Thermal/electrical energy conversion</th><th rowspan="2">Distribution to public consumption</th></tr>
<tr><th>Woodchip</th><th>Pellet</th><th>Firewood</th></tr>
<tr><td rowspan="2">SOCIAL</td><td>(1)Lack of institutional strategy of communication and divulgation.

(2) Lack of awareness about the benefits of carrying out a sustainable forest management.

(3)Lack of awareness of some owners about the location of the forest ownership.

(4)Lack of studies to quantify and valorize the risk management regarding bushfires.

(5) Lack of awareness about the benefits to consume wood at local level; this consumption reduces 60% the bushfire risk.</td><td>(1)Short-medium term vision of the effects after forest interventions.

(2)Environmental local groups against forest interventions who slow-down the forest value chain, creating a wrong view about sustainable forest management.

(3)Fear to legislative changes which increase the taxes, putting in risk the supply security.</td><td colspan="3">(1)Lack of awareness about the different biomass products to obtain bioenergy and their ecological benefits in the environment.

(2)Lack of promotion of the use of biofuels by the society (end consumers).</td><td rowspan="2">No obstacles found</td><td colspan="2">(1) Lack of awareness and specific formation of technical staff in rural areas about the management and maintenance systems as district heating.</td></tr>
<tr><td>No obstacles found</td><td>(1)Lack of awareness that prevents the progress of the sector.</td><td>(1)Lack of awareness to the importance to have a regulated market regarding the use of firewood as bioenergy.</td><td>(1)Low experience and knowledge in projects carried out by the administrations.

(2)Reticence due to a low availability and the lack of a consolidated market.</td><td>(1) Uncertainty of potential actors at the end of the bioenergy value chain.

(2) Lack of awareness of the citizens of promoting centralized systems.

(3) Lack of normative knowledge which allows regulating the implication of the administration to promote the sector.</td></tr>
</table>

Economic barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
ECONOMIC	(1)Resources to extinction but not for prevention. Not clear balance between the strategies for forest fires prevention in regard with the extinction strategies. (2)Not enough investment by the gobern to have a sustainable forest management in public forests. (3)Lack of funding which entails that the owners have more global costs to redact forest management projects regarding the economic benefits of the use of forest biomass at short term. (4)Minimum subsidies (e.g. Rural Development Plan) to the owners and sometimes lack of subsidies which endange the viability of local enterprises. (5)Lack of economic profitability in forest management units included in Natura 2000. (6) Lost job opportunities. (7)Dependence of the grants which finally affect to the industrial fabric. (8) Currently costs of agricultural residues management and seasonality of the resource. (9)Absence of bonus in a more favorable tax regime of the costs which the administration saves herself when a sustainable forest management is made in relation to bushfire risks.	(1)Costs to remove and transport biomass: low added value of the product and high transport costs. (2)Costs in the exploitation of densified forest with complicated orography. (3)Costs to maintain the infrastructure of the forest roads. (4) Machine costs which entailed non profitable works. (5)Less industrial fabric due to the lack of grants. (6)Doubt about the profitability of clearings proposals for forest improvements.	(1)Lack of established market in the CV; supply (offer), distribution and consumption (demand). (1)Infrastructure costs to the supplies and industrial transformation in rural areas. (2)Market distortion due to conjunctural supply/demand situations of woodchip. (3)Costs to classify the woodchip.	(1)Globalization of pellet markets a short and a médium term. (2)High competence with consolidated markets.	(1)Cost of supply and production. (2)Lack of value due to a market neither established nor transparent.	(1)Large volumes, by logistics and biomass supply enterprises, are not insured. (2)Logistic costs between the forest and the valorization plant. (3)Currently, in the CV is not available an established market of distribution of forest biofuels.	(1)Variability of the forest waste prices which difficult the estimate cost-effectiveness of the plants/facilities. (2)Lack of presence in sectors which consume a lot of thermal energy; big public primary consumers, as agri-food sector, also ceramic sector. (3)Lack of contracts between the owner of the plant and the forest owners to guarantee a continuos supply of raw material a long term. (4) Logistic costs in transformation: expensive technology; the biomass boilers facing the traditional alternatives based in using fossil fuels. (5)Obstacles in the construction of Industrial Parks, facilities and infrastructures in rural areas. (6)Dependence of the grants and the necessity to regulate the market by itselft in the future. (7) External financing is complicated by fears of ensuring a long-term the supply. (8)High initial investment (without grants) that slows down the starting of the facilities. (9) Lack of steadied supply to demand bank subventions.	(1) Currently, there is not an established connexion between the offer and the demand. The market is not adjusting to the biomass. Concretely, in the Comunitat Valenciana is not available an established market of demand of forest biofuels. (2)Incipient market of boilers and facilities; high prices of stoves and boilers due to a lack of supply diversification and increasing demand; fragmentation. Lack of stockpiling in the offer. (3)High prices to pellet distribution to domestic use. (4)Dependence on the price of diesel. (5)High price of the final product. (6) The market has the final decision to determine the price (e.g. di-generation). (7) The electrical sector based in forest biomass has a complexity due to the existing auctions and for political reasons. (8)The commercial centres have a majority electrical consumption and the displacement of this kind of technology is complicated. (9)The facilities which are dimensioned just for heating are antieconomical due to the intensified use is reduced. (10)Lack of innovative equipment which is economical. (11) Due to a lack of enough proposals to the grants, the total budget is not awarded.

6.4.3 Identification of barriers in national/regional/local protected areas (National Parks, Nature Parks)

The analysis of this set of barriers (6.4.3.) has been made togheter with the 6.4.4. identification of barriers national/regional/local protected areas (Natura 2000) due that the most part of the Valencia territory is under Natura 2000 figure[4], being overlapping in a high percentage with Protected landscape, Municipal protected sites, Natural reserve and Natural Park, among others (see figure n.1). Nevertheless, it is noted that even though this part has not been done separately, there is a high number of barriers detailed in the part 6.4.7 which are in common. Therefore, the procedure has been done clustering all protective barriers in the same part of this study.

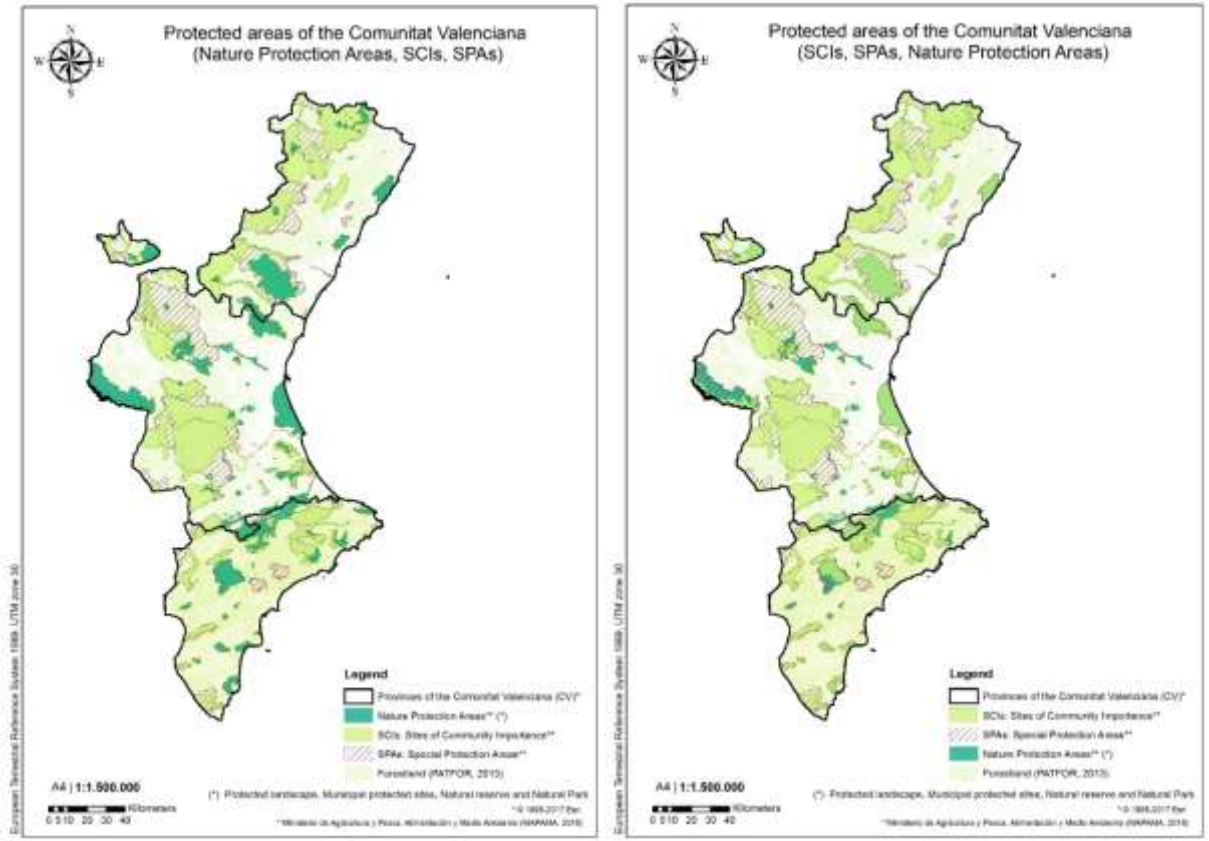

Figure 1. Overlapping of the protected areas of the Comunitat Valenciana

[4] Protection figures are overlapped and submitted to accumulative restrictions. More than 50% of the forest surface has some protection figure. Even two or more figures are overlapped in more than 30% of the forestland. More than 80% of the forests included in the 22 Natural Parks are part of Natura 2000.

6.4.4 Identification of barriers in Natura 2000 protected areas (SCI, SPA)

Legislative barriers

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
LEGISLATIVE	(1)High number of protection figures which difficulties the forest management projects. (2)Protection figures overlapped. (3)Contradictory and excessively protectionist policies preventing private and municipal management. (4)Differences through other Spanish Regions, lack of management of the competent Authority and lack of concretion of the authorized regime. (5)Lack of coherence between the objectives of Natura 2000 and those of the Region of Valencia in these protected areas; in Spain each Regional Government has its degree of protection, financing, management, etc. Moreover, the Regional Governments which have the responsibility of the Natura 2000 management do not know how to make management tools; lack of coherence. (6)Lack of effectiveness of the Natura 2000 in the conservation of the biodiversity due to a lack of management. (7) Lack of management in Natura 2000.	(1)Important limitations for forest harvesting. (2)Lack of coherence between the authorized/allowed and forbidden operations. (3)Difficulty to do wider the forest roads or make tasks to maintain them.	(1) Complexity in the authorizations of procedures in non-urban land at regional level (Law 5/2014[5]).			*No obstacles found*	(1)All infrastructure projects within a Natura 2000 area, which are neither directly related to the Natura 2000 management nor directly or indirectly affect them, should be subject to a detailed preliminary assessment of their impact, depending on the habitats species and conservation objectives. (2)Lack of establishment of EU Biodiversity strategy and the EU renewable energy goals.	*No obstacles found*

[5] Ley 5/2014, de 25 de julio, de Ordenación del Territorio, Urbanismo y Paisaje, de la Comunitat Valenciana (https://boe.es/diario_boe/txt.php?id=BOE-A-2014-9625)

Administrative barriers

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
ADMINISTRATIVE	(1)Excessive procedures and long time to get the approval of the implentation of forest management projects in protected areas; if the projects are not revised on time, they can be obsolete. (2)Accumulated delay in the declaration of the SAC and in the approval of the corresponding management plans of each one of them; In the CV only the 33.33% of the SACs have been approved; accumulation and urgency for the approval. (3)Lack of coordination and collaboration between administrations. (4)The precautionary principle difficulties the authorizations to carry out a sustainable forest management. (5)Lack of administrative management in the protected areas; the increased of the administrative procedures linked to an excessive bureaucracy for the forest owner is complicated for the forest managers. (6)Lack of communication and participation in the management of areas included in Natura 2000. (7)Lack of involvement in the management of Natura 2000. (8)Lack of public participation in the assessment of forest management plans in protected areas. (9)Lack of synergie between Natura 2000 and the management bodies of the protected areas. (10) Lack of knowledge about the state of the areas to be protected. (11) Short term to get the objective of Natura 2000 with the EU. (12)Lack of technical management for each area. (13) Misinterpretation of the Natura 2000 objective: conservacionism through passive and restrictives policies where conservation is a basic pillar for the forest management.	(1)The principle of precaution makes difficult the obtention of the required authorization forest harvesting, restricting land management (2)Uncertainty on the control of the forest use by the authority in Natura 2000 areas. (3)Necessary authorization for forest production due to the precautionary principle of Natural protected areas and Natura 2000.	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	(1)Complex procedures in the case of positive affection, which are translated into a set of studies and statements to be exchanged between administered people and the administration as the "Study of Affections" etc.	*No obstacles found*

Technical barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
TECHNICAL	(1)Lack of indicators and guidelines for the Natura 2000 management (private and municipal ownership). (2)Lack of coherence in the implantation of protected areas. (3) Lack of coherence between different Regional Governments regarding the application of the rules to carry out a forest management in Natura 2000. (4)Each protection figure has its own tools to be managed. (5)Precipitation, urgency and scarce technical basis for approving important documents. (6)Difficulty in forest management projects in highly fragmented private forests. (7)Spain is the country with more protected surface. Nevertheless, there is a misunderstanding about the initial objectives of the Natura 2000 protection figure.	(1)Restrictions to use machines for forest harvesting and logistics in protected areas.	*No obstacles found*	*No obstacles found*	*No obstacles found*	*No obstacles found*	(1)The technical viability to implement potential facilities is complicated due to the own characteristic of the protected areas under Natura 2000.	*No obstacles found*

Social barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
SOCIAL	(1)Reticence to use biomass in protected areas. (2)Lack of knowledge of the relation between sustainable forest management and the conservation of the Natura 2000 objectives which entails a lack of awareness on the contribution of forest managements to maintain the biodiversity; conservationism through passive restrictive policies; confussion between forest conservation and management. (3) Short-medium term public opinion regarding the forest management; low awareness. (4)Lack of information about the protected areas; the society does not know this protection figure. (5)Lack of awareness of the consequences of do not carry out forest management regarding the risk of bushfires. (6)The private owners have a negative vision about the benefits that Natura 2000 can provide them.	(1) Pressure from certain local conservation groups that hinder/prevent the execution of forest works in protected areas. (2)There is not a clear vision about the relevance of execute forest works in order to contribute to the conservation objectives of the protected areas.	(1)Ignorance about the use of biofuels and how they contribute in a low-carbon economy.			*No obstacles found*	(1)Local environmentalist groups are against the facilities. (2)Lack of awareness about the benefits of the implantation of a district or industrial heating.	*No obstacles found* .

Economic barriers:

	Forest management	Forest harvesting & logistics	Biofuels industry			Distribution	Thermal/electrical energy conversion	Distribution to public consumption
			Woodchip	Pellet	Firewood			
ECONOMIC	(1)Economic restrictions. (2)Lack of funding and human resources for direct management measures; there is a lack of specific financing for measures which have economic costs for owners. (3)The economic compensation is not being guaranteed. (4) Lack of investment to reach the conservation objectives in protected areas. (5)Cost of the certification: cost overrun. The costs are increased due to the forest management in Natura 2000 areas for the necessity to make more administrative procedures. (6) Forest Surface included in Natura 2000 has not added real value to forest products and services.	(1)Lack of investment due to factors which cause insecurity in the development of the forest works. (2)Cost of the certification; cost overrun. The costs are increased due to the restriction of using forest machines for silvicultural treatments.	(1)Lack of a settled and guaranteed market; there is no balance between supply and demand			*No obstacles found*	*No obstacles found*	(1)Lack of bioenergy demand.

6.4.5 Selection of maximum 3 key barriers in national/regional/local protected areas (National Parks, Nature Parks)

The selection of the key barriers has been done as agreed in 6.4.3.

6.4.6 Selection of maximum 6 key barriers in NATURA 2000 protected areas (SCI, SPA)

Priority	Barrier	Step of value chain (Forest management, forest harvesting & logistics, etc.)	Character (Legislative, Administrative, Technical, Social and Economic)
1st	Excessive administrative procedures which are increased for private forest owners. Complexity in the authorizations of procedures in non-urban land at the regional level (Law 5/2014). Overlapping of competences that increased the complexity of the approval procedures.	Forest management and forest harvesting & logistics, biofuels industry.	Legislative and administrative
2nd	Atomization and fragmentation of the forest ownership. Lack of owner engagement to implement a forest management due to a lack of knowledge, as well as of profitability in the protected areas.	Forest management	Technical and social
3rd	High number of protection and overlapping figures which difficult the forest management.	Forest management and forest harvesting & logistics	Technical
4th	Lack of knowledge and public opinion in the short-medium term of forest exploitation; Low awareness	Forest management	Social
5th	Lack of a settled and guaranteed market; There is no balance between supply and demand.	Distribution to public consumption	Economic and social
6th	Pressure from local conservation groups that hinder/prevent the execution of forestry work in the protected areas	Forest harvesting & logistics	Social

6.4.7 Involvement of regional stakeholders, proposal of possible solutions and definition of operational recommendations

Definitive Priority	Barrier	Stakeholders involved in the region	Proposal of possible solutions	Operational recommendations
1st	**Excessive administrative procedures which are increased for private forest owners. Complexity in the authorizations of procedures in non-urban land at regional level (Law 5/2014). Overlapping of competences that increased the complexity of the approval procedures.**	(1) Local/regional public authorities (2) Private forest owners (3) Municipal forest owners (4) Private and public companies (5) Professional associations and technicians (forest engineers) (6) Management bodies of the protected areas (7) end-users	(1)The administration has to promote the sustainable forest management in protected areas. (2)The simplification of the authorization procedures is needed in order to carry out forest management and harvesting operations; raising awareness of the advantages to simplify the procedures. (3)Take into account key actors who are directly involved in the forest managament in order to act in the procedure of the simplification normative. (4) Improvement system for coordinating normative in all Regional Governments in Spain.	(1)The competent administration has to support and facilitate the realization of forest management projects in protected areas. (2) Definition of policies and standardized procedures for administrative streamlining. (3)Provide more administrative staff and technical expertise to carry out sustainable forest management with bioenergy purposes in the protected areas for bushfires prevention. (4)Simplification of the procedures to redact and approve sustainable forest projects in order to promote the use of forest biomass with bioenergy objectives. (5) To promote the implementation of a quality control system for the traceability of the results and solutions in the simplifying administrative process.

Definitive Priority	Barrier	Stakeholders involved in the region	Proposal of possible solutions	Operational recommendations
2nd	**Atomization and fragmentation of the forest ownership. Lack of owner engagement to implement a forest management due to a lack of knowledge, as well as of profitability in the protected areas.**	(1) Private forest owners (2) Municipal forest owners (3) Private and public forest companies: harvesting and logistics (4)Local/regional public authorities	(1)Inform about the Natura 2000 opportunities and the importance of this protection figure against bushfires risks and for maintaining the biodiversity (2)Have a close cooperation between competent Authorities of forest and nature protections with owners and management bodies. (3) The State Members have to support the owners and forest managers in order to carry out forest management projects linked with the rural development.	(1)Compensation or economic incentives (payment for environmental services) when a forest management and intervention is doing correctly (active management) under Natura 2000 objectives, as well as when the forest activity is restricted. (2)Provide to the owner technical assistance. (3) Encouragement of agroforest cooperatives and associative management formulas (4) Boosting forest ownership associations and the cooperations between owners, as well as with the key actors involved in the forest bioenergy value chain. (5) Promote a public-private cooperation which is linked with forest owners, local enterprise and municipal administration to develop all the steps in the forest bioenergy value chain. (6) Define territorial management plans (forest administration of the Regional Governments) and promote projects development (regional public administration), especially in those areas where there is an important municipal propriety in order to ensure the future of residual forests biomass in a bioenergy plant.

Definitive Priority	Barrier	Stakeholders involved in the region	Proposal of possible solutions	Operational recommendations
3rd	**High number of protection and overlapping figures which difficult the forest management.**	(1)Private and municipal forest owners (2)Sectorial agencies (3) Private and public forest companies: harvesting and logistics (4)Relevant regional and municipal departmens and companies. (5)Local/regional public authorities (6)Management bodies of the protected areas	(1)Raise awareness that, al least in the MED area, many habitats and ecosystems to be protected under Natura 2000 figure is due to the human activity; an active and sustainable forest management is needed in Natura 2000 areas in order to reach objectives of conservation. (2) Review and update, by the forest administration, the management projects expired to be implemented. (3)To develop a multidisciplinary and cooperative approach integrating the public participation during the planning and preparation of the specific objectives and conservation measures in Natura 2000 areas.	(1)Promote the use of forest products not only as sustainable energy source but also as the tool to rural development with local forest resources, carrying out an integral and multifunctional forest management. (2)Promote the establishment of new policies which really contribute to carry out an active management for improving biodiversity. (3)The contribution of Natura 2000 in the quality and stability of rural livelihoods; increasing employment and agroforest incomes. (4)Establishment of unified normative for Spanish Regional Governments. (5) Boosting the cooperation between management bodies of protected areas and forest owners. (6) To implement correctly the European Commission guidelines established for the Natura 2000.

Definitive Priority	Barrier	Stakeholders involved in the region	Proposal of possible solutions	Operational recommendations
4th	**Lack of knowledge and public opinion in the short-medium term of forest exploitation; Low awareness**	(1) Private forest owners (2) Municipal forest owners (3) Local/regional public authorities (4) Management bodies of the protected areas (5) Higher education and research (6) Professional education and technicians (forest engineers) (7)Sectorial agencies	(1) To disseminate in the public opinion the basic principle of sustainable forestry concepts: - Binomial and balance between forest conservation and management. (2) To promote sustainable forest management measures appropriate for local climate and environmental climate conditions in the Mediterranean areas. (3) Arise awareness of the local communities on the benefits of sustainable forest management oriented to the biomass use for energy purposes, improving environmental services of the ecosystems and resilience against bushfires and climate change effects (Natura 2000 status is compatible with multifunctional forest management).	(1)Identification of pilot/project areas representative for good practices in sustainable and multifunctional and subsidiary forest management to be disseminated. Creation of a Demonstration Center. (2)Quantitative studies to objectively know the possible positive and negative impacts of a biomass extraction, especially in aspects such as biodiversity, quality of soil and water, landscape, carbon balanced and bushfires prevention). (3)Awareness campaigns aimed at politicians/population focused on environmental benefits due to the energy production for short biomass chain. (4)Adoption by public administrations of the use of biomass for energy purposes, to promote private initiative and serve as an example.

Definitive Priority	Barrier	Stakeholders involved in the region	Proposal of possible solutions	Operational recommendations
5th	**Lack of a settled and guaranteed market; There is no balance between supply and demand**.	(1)Sectorial agency (2)Local/regional public authorities Forest owners (3)Forest harvesting and logistic companies and associations (4)End-users bioenergy (5)Trade intermediate companies	(1) Define and establish local forest biomass markets in protected areas that guarantee quality, price and supply. (2) To promote the local demand for biofuels in protected areas.	(1) Development and implementation of quality labels and traceability schemes of forest biomass and biofuels. (2)Promoting the use of biofuels at local level, especially in industries and public buildings/facilities with a high demand for thermal energy. (3)Creation of incentives for the use of biomass, with funds from the European Rural Development Plan. Grants for installation of biomass boilers. (4)Support to private initiatives to improve logistics and payment for environmental services to forest owners who carry out active management, at the same time that the conservation of Natura 2000 is being favorable. (5) The Public Administration should support the private owner to carry out forest works in its forest land in order to create a stable market.

Definitive Priority	Barrier	Stakeholders involved in the region	Proposal of possible solutions	Operational recommendations
6th	**Pressure from local conservation groups that hinder / prevent the execution of forestry work in the protected areas**	(1) Local/regional public authorities (2) Management bodies of the protected areas (3) Professional education and technicians (forest engineers)	(1)Information and communication about strenghs and opportunities of sustainable forest management oriented to biomass and active bushfire prevention. (2)Creation of interdisciplinary working groups, to consensue and objectifies the creation of opinion on scientific bases.	(1)Participation of opinion leaders in the awareness and knowledge of the concepts of sustainable forest management (strategies and plans) in protected areas

6.4.8 References

Legislative textes:

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- Ley 5/2014, de 25 de julio, de Ordenación del Territorio, Urbanismo y Paisaje de la Comunitat Valenciana.
- Ley 21/2013, de 9 de diciembre, de evaluación ambiental.
- Ley 41/2010, de 29 de diciembre, de protección del medio marino.
- Ley 42/2007, de 13 de diciembre, del Patrimonio Natural y de la Biodiversidad
- Ley 45/2007, de 13 de diciembre, para el desarrollo sostenible del medio rural establece que las áreas rurales integradas en la Red Natura 2000 tienen la consideración de zonas rurales prioritarias a efectos de la aplicación del Programa de Desarrollo Rural Sostenible.
- Ley 11/1994, de 27 de diciembre, de Espacios Naturales Protegidos de la Comunitat Valenciana.
- Ley 3/1993, de 9 de diciembre, Forestal de la Comunitat Valenciana.
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- El Real Decreto Legislativo 2/2008, de 20 de junio, por el que se aprueba el Texto Refundido de la Ley de Suelo.
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