Edited by
Marino Cavallo

SUSTAINABLE CONSUMPTION AND PRODUCTION IN THE MEDITERRANEAN AREA

Bononia University Press

Projet cofinancé par le Fonds Européen
de Développement Régional (FEDER)

Project cofinanced by the European Regional
Development Fund (ERDF)

SUSTAINABLE CONSUMPTION AND PRODUCTION IN THE MEDITERRANEAN AREA

Harmonization and Integration of Policies Recommendations

Edited by Marino Cavallo

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ECO-SCP-MED is a Capitalization Project funded by MED Programme 2007-2013.

The partnership of the project is made of IAT Andalusian Institute of Technology, Lead Partner; CERTH Centre for Research & Technology – Hellas; ENEA Italian National agency for new technologies, Energy and sustainable economic development; Province of Bologna; AVITEM Agency of Sustainable Mediterranean Cities and Territories; Sostenipra – UAB Universitat Autònoma de Barcelona; Cro CPC Croatian Cleaner Production Centre Institute for Promoting Cleaner Production; SRC Bistra Ptuj Public institution Science Research Centre Bistra Ptuj; SSSUP Scuola Superiore di Studi Universitari e di Perfezionamento Sant'Anna; CCI NCA Chamber of Commerce and Industry Nice Côte d'Azur.
The Eco-SCP-Med Consortium consists of 10 complementary partners from 6 different European Countries, namely Spain (Sevilla, Barcelona), France (Nice, Marseille), Italy (Rome, Pisa, Bologna), Slovenia (Ptuj), Croatia (Zagreb) and Greece (Thessaloniki).

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Bologna, 2014

Bononia University Press
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tel. (+39) 051 232 882
fax (+39) 051 221 019

ISBN 978-88-7395-972-4

www.buponline.com
e-mail: info@buponline.com

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Introduction

This analysis deals with policies to be implemented at the European level for the integration of Sustainable Consumption and Production (SCP) practices in the Mediterranean area.

Sustainable development is the key factor for answering to economic, social and environmental challenges. The climate change and the economic crisis request new development models and the adoption of sustainable consumption and production patterns.

SCP aims at implementing sustainable productive processes, goods and services in Small-Medium-Enterprises – single, clustered in Industrial Areas (IAs) or in Eco-industrial Parks (EIPs) - on the international market and increasing awareness of local authorities, economic and financial bodies, entrepreneurs, workers, consumers, trade associations at territorial and transnational level. It also aims at developing sustainable buildings, construction, public procurements and sustainable transport and tourism. SCP promotes the improvement of sustainable local productive systems, energy efficiency, sustainable infrastructures, in order to create new opportunities, new markets and a transition to a low carbon economy. The main SCP's achievement is to reduce environmental degradation by increasing resources efficiency and ecosystem protection in production, distribution and use of products. Furthermore, SCP allows to create new economic opportunities in terms of sustainable transport, renewable energy, territorial marketing and to make competitive and attractive a local productive system on transnational market.

In recent years, SCP have known a growing influence in the European Union's policy framework. After Gothenburg European Council in 2001, the European Commission outlined a Sustainable Development Strategy (EU SDS), renewed to the benefit of enlarged Union in 2006 and 2009. The EU SDS provides a long-term vision, being a framework for all European policies, in order to integrate sustainability in any field of activity, an orientation pursued and strengthened with Europe 2020 Strategy.

In continuity with EU SDS, the European Commission presented in 2008 the Sustainable Consumption and Production and Sustainable Industrial Policy (SCP/SIP) Action Plan (COM (2008) 397), containing proposal to enhance environmental performances and to improve demand and supply of sustainable goods and services.

SCP/SIP provides a dynamic framework to improve the energy and environmental performance of products and foster their uptake by consumers. This includes setting ambitious standards throughout the market, ensuring that products are improved using a systematic approach to incentives and procurement through the creation of a virtuous circle: improving the overall environmental performance of products throughout their life-cycle, promoting and stimulating the demand of better products and production technologies and helping consumers to make better choices through a more coherent and simplified labelling.SCP/SIP approach integrates the potential of the different policy instruments, implementing them in a dynamic way. Those instruments are:

- Ecodesign Directive, providing rules for setting ecodesign requirements for energy-using products in a life-cycle perspective.
- Labelling of products, used for indicating, on one hand, the energy consumption/savings by productive phase and, on the other hand, other relevant and significant environmental parameters of the product, with the UE Ecolabel acting as a "label of excellence" to signal to consumers those products that perform at such a level when many environmental criteria are considered over the whole life-cycle.
- Incentives for development and acquiring of energy and environmental performing products and "greening" procurement practice. The EC will set labelling classes as a level above the applicable community environmental requirements and below

which Member States would not be allowed to set incentives. This level will be set.

- Green public procurement (GPP) promotion and strengthen, to magnify the impact of the previous measures through the setting of indicative targets based on the level of best performing member states, and providing model tender specifications. It also includes the creation of a process of cooperation with the member states to identify and agree upon common GPP criteria.
- Work with retailers and consumers, with the first category in a strong position to influence more sustainable consumption. Further effort is needed to reduce the environmental footprint of the retail sector and its supply chain, promote more sustainable products and better inform consumers. To achieve this, other stakeholders, such as producers as well as consumers and other non-governmental organisations, will also be involved.
- Boosting resource efficiency to contribute to the goal of creating more value while using less resources, through monitoring, benchmarking and promotion of resource efficiency, taking into account a life-cycle perspective.
- Support to eco-innovation as part of a wider EU research and innovation policy and its instruments. An EU wide environmental technology verification scheme will be established to provide reliable third-party verification of the performance and the potential impacts on the environment of innovation, helping to provide confidence for new technologies emerging on the market.
- Enhancing the environmental potential of industry through a revision of EMAS Regulation, to increase the participation of companies, and reduce the administrative burden and costs to SMEs; the development of industrial policy initiatives for environmental industries, to further their competitiveness and favour their uptake by traditional ones; the support to SMEs, burdened by lack of information, insufficient expertise and scarcity of financial and human resources to fully exploit the business opportunities offered by a sound environmental management.

Many of the previous issues has been taken into account by the activity illustrated in this report. It is an activity of capitalization of 11

cooperation projects in the field of SCP policies, aimed at carrying out networking activities to discuss policy recommendations for future implementation at the European level, and to harmonize them for the integration of SCP practices in the Mediterranean area.

The report has been built on three sources of data and information: desk analysis for in-depth investigation on the capitalised European projects; narratives on the European projects made by the same partners, based on an open-grid with key-points for identifying the most significant SCP policies emerging from the experiences; revision and second reading of the information gathered with respect to the three focus areas of "Production processes", "Products and consumption", "Industrial areas" made by specific working groups; finally, set of interviews with external experts and stakeholders throughout the Mediterranean with relevant skills in the treated issue.

The attendant report is composed by five chapters: Chapter 1 constitute the theoretical framework of the research. In this, we effort the significant of "policy" from the political science point of view, the main discipline of policy studies. But since the theme of our work is SCP policies, a theme strongly related to markets of goods and services, we need to front the policy issue also from the point of view of economics, especially environmental one.

Chapter 2 describes and systematizes the eleven capitalizing projects and the territorial, social and economic contest in which the projects took place and the partners act.

Chapter 3 rebuilds the SCP policies frame, underlining the most significant ones to the capitalizing projects, as it was pointed up by partners in the information grids; these policies are systematized in accordance with the policy classification described in Chapter 1.

Chapter 4 reworks the analysis made by the working groups on the three chosen issues (Products and consumption; Production processes; Industrial areas), deepen the toolkits prepared for the implementation of SCP policies and anticipate some policy recommendations emerged by capitalization work.

Chapter 5 makes the same with the 19 interviews dispensed by stakeholders and experts to partners, measuring with a set of common answers on the definition of SCP policies, the state of the art, available instruments and tools to implement them, obstacles and barriers for

the mainstreaming, points of strength and weakness, the role of EU and regional bodies, further prospects for SCP policies.

Chapter 6 accounts and reports the networking activity, developed in a two day-transnational workshop in Bologna (14th and 15th of may 2014) with the word café participation technique. The activity allowed to share impressions and interpretations on the notion of policy when applied to sustainable consumption and production in the Mediterranean.

Last chapter (Chapter 7) gets back the main cues coming from the previous chapters, to get a shared list of 20 policy recommendations that address the work to be done until the conclusion of ECO-SCP-MED project.

Two Annexes report a Glossary (Annex 1) of the most relevant terms and notions used in the document, and the list of interviews (Annex 2).

This research is aimed at sharing methodologies and exchanges of experiences at the European level in order to spread new work patterns in the field of sustainability, ecological production and responsible consumption. We are aware that green economy can represent an actual factor of competitiveness for businesses and European territories and that it can encourage high qualified job opportunities, new businesses and start-up.

Furthermore, the research inspired to the criteria of sustainability can also bring new economic models. For example, recently,there has been a frequent debate about *circular economy*; it deals with manufacturing processes designed in such a way that the materials and resources can be used in different production cycles and become renewable raw materials.

In this way, according to the same logic underlying the use of renewable energy, also raw materials used in production processes can be reused and greatly contribute to reduce the impact on the surrounding environment. Thanks to this new circular pattern, companies, territories and consumers may become actors of a new cooperative economic system capable of producing well-being and development without increasing pollution and negative environmental effects.

Hoping to catch your attention.

Marino Cavallo

Chapter 1

Theoretical approaches to the notion of policy

1.1 What is this thing called policy

1.1.1 (Not just) A terminological matter

Because of the high complexity of modern society and governance systems and actors, nowadays the notion of "policy" is very blurry and elusive. Definitions and taxonomies range from *stricto sensu* notions, with a strong emphasis on multilevel government actions and objectives, and broader ones, relying on the problem that has been addressed and the way to approach it.

"A policy is a well designed programme with values, objectives and practices" state Laswell and Kaplan (1950, p. 87). A policy deals with "all the things that public bodies decide to do or not to do" claims Dye (1987, p. 1).

The centrality of public subject and the exactness of the programmes are both harshly criticized by many political scientists, convinced that public institutions can leave room to privates and NGO in searching for solutions to the benefit of the community, and that the complexity of modern society claims for a more flexible approach: "Public and private are the extremes of a continuum; General Motors is as 'public' as US Postal Service" (Dahl, 1970, p. 120); "A policy is a set of current assumptions, build up along time by civil servants and politicians, run until it works, remedied if necessary, and turn inside out when not recoverable (Heclo e Widalvsky, 1974, p. 346); "more than well defined

objectives, policies are designated by the commitment to deal with a issue" (Colebach, 1995, p. 155); "policy necessary is an abstraction. Behavioural schemes make a policy more than single, isolated acts" (Salisbury, 1968, p. 153).

From certainty to ambiguity, from the perfect planning to the continuous tuning of means to changing aims, very difficult to be grabbed. But in this magmatic and complex world, we need a focal point to reduce discretion. A good help in this sense is given by Lowi: "A policy must have something to do with government and governmental agency long-term intentions, and with public commitment to be pursued with incentives and sanctions" (Lowi, 1975, p. 270).

According to Lowi, to have a policy the focus ought to be on the collective relevance of the problem to be faced, and on the fact that a minimum of public resources must be activated.

The "collective problem" is nothing more than a lag between what a social group or a part of it wants, and what they perceive as given by the public actor (Regonini, 2001). It is worth noticing that neither the public nature of the problem nor its boundaries are absolute facts, but on the contrary they depend upon many variable and factors.

Boundaries, in particular, could be very blurry, mainly if related with environmental policies and sustainability: what is public, and what is private? What happens when an issue arises in the behavioural ground, to become a collective problem (for instance the strong fall in the birth-rate of European communities, creating a deep social problem for the pension-provision system sustainability in a few decades) or, vice versa, it deals with collective interests affecting personal welfare (e. g. the establishment of a waste incineration plant that reduces the real estate values of a nearby urban centre)? The same boundaries could be controversial, since it is not unusual for the same problem to be looked at from different points of view (is it potable water provision an economic efficiency issue, so that a better service ought to match inevitably to higher fares, or is it part of non-negotiable human rights, to be guaranteed independently from the purchasing power of the individual?). And boundaries are mutable, so that the identification of a policy implementation field does not work forever (for instance telework, considered for many years a job market or a business organization problem, and now turned in a different issue, since the Al Gore speech on the opportunity to "move files,

instead of people" as a solution for traffic congestion and the associated environmental problem (Regonini, 2001).

Finally, policies are not isolated from the physical, social, and administrative environment where they are applied. On the contrary, they are characterized by limits of different kinds, such as political, technical, financial, juridical, cultural, organizational, and so on. As a consequence, policy studies require an interdisciplinary approach, a plurality of perspectives aimed at treating a "undisciplined discipline" (Rose, 1989). Last 30 years of policy studies have widened the range of significant factors for policy identification: not only legislation, but all act and actions affecting issues of collective relevance, implemented by official authorities' law officers but even by simple civil servants; not only the political debate, but even the media or the scientific ones.

Another interesting taxonomy classifies policy approaches into five levels: overarching principles; general policies, strategies and concepts; policy instruments; and tools[1].

After having considered different approaches and point of views, we can conclude with a definition of what a policy is as follows.

A policy is a set of laws and legislation, principles and associated guidelines, tools and strategies designed and enforced mostly by governing bodies, but even by innovative businesses, business associations, research bodies and training centres, to direct and address actions for achieving long-term collective goals.

1.1.2 Resources and tools at disposal of the policy maker

Once clarified the boundaries of the concept of policy, an interpretation of the different instruments is equally important for the development of the research; they can be activated by a policy maker to pursue the policy's objective.

As a matter of fact, policies use a large range of resources and techniques, far wider, and in many cases far more effective, than the straight

[1] A distinction is made between instruments and tools. Instruments have a steering function and provide incentives, while tools can be used to achieve a specific purpose. Thus, a policy instrument implies some degree of governmental or political intervention, while tools involve practical means of support, promotion, etc., including manuals, CD-ROMs, books, and software.

legislative power. It is a policy maker's own privilege to generate a satisfying outcome with a smart and coordinated use of instruments and tools such as negotiation, campaigns, incentives and compensations (even when symbolic), habits and social norms, even absence of norms, with no recourse to a new legislative production, often the cause of a normative over-production that affects negatively policies' suitability.

In this sense, we will consider in the next pages a complete typology of instruments, all of them working or interpretable as policies:

- norms and laws, setting the relevant criteria to be fitted by individual and collective behaviours, controlling for the rightful implementation and sanctioning infringements; they are not the only instrument in the hands of the policy maker, but it does not imply neglecting them;
- plans, programmes, and strategies, designed to address the future development of an issue;
- provision of public goods and services to the benefit of the whole community or of a particular group inside of it;
- design of procedure and mechanism, both discretional or automatic, to deal with recurrent critical situations;
- support to the birth and the strengthening of networks for the cooperation and the circulation of ideas and best practices;
- design of social marketing and public opinion campaigns to persuade the members of the community to change their behavioural patterns;
- pilot projects, shared platforms, single actions as certification.

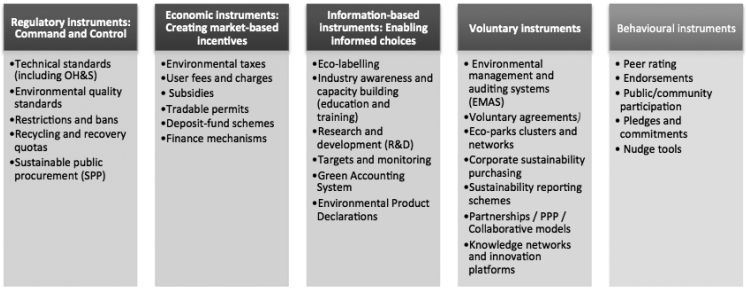
In conclusion, thinking in terms of policies means to go further and deeper in a free reflection about the way a programme is implemented; not only in terms of actions and outcomes, but mostly of its general impact on relevant variables and issues.

1.2 The environmental problem with respect to consumption and production

SCP aims at implementing sustainable processes, goods and services on the market and increasing awareness of different kinds of agents

and stakeholders. Involving a so vast audience, it is not surprising that dedicated policies are very miscellaneous as well.

In a recent taxonomy, the SCP policy instruments and tools have been broadly classified into regulatory, economic, information-based/ educational, voluntary agreements, and behavioural instruments. They have distinctive characteristics and target different set of behavioural change, reported in next figure[2]:



Tab. 1.1: A taxonomy of SCP policy instruments and tools (Source: IAT Andalusia)

Although the completeness of this classification, well aligned with the theoretical taxonomy introduced in Section 1.1.2, in next Section we recall the taxonomy of environmental economics, the discipline that more than others is appointed on the issue of the sustainability of markets.

1.2.1 Environmental externality and the market

As pointed out in the previous pages (see Introduction), the issue of sustainable consumption and production involves many areas on human behaviour, but it has a strong root in the market notion. The market is the place where consumer and producer meet each other, and it is on the market that it is possible to change partially consumption and production habits to reach higher levels of sustainability.

It is not a case if sustainability and environment are topics treated

[2] We acknowledge Ms. BurcuTunçer, Associated Expert at SCPRAC/ SWITCH-Med, and IAT for this information and for the provision of table 1.1.

by economic theory in the particular category of "market failures", i.e. the situations where market mechanism do not works, and the final allocation of resources at equilibrium is not the more effective.

The focal element for this issue is the notion of "externality", technically represented by the gap between (private) costs borne by producer, and (social) costs borne by the community as a whole. We see an externality every time the action of an agent affects the objectives and the well-being of some other agents with neither a market nor a non-market deal among them: a condominium resident who do not insulate the apartment's flue and causes the blackening of the tenant on the top floor produces a negative externality, measurable in monetary terms with the charges for clearings the top floor tenant must bear to fix the trouble. With the same rationale, the owner of a cottage adjoining the Police Station, enjoys a positive externality because of the higher (and free) security against breaking and entering theft.

So, the relevant aspect with externality is that the action responsible for it does not imply neither an ex-ante agreement nor an ex-post compensation/payment between the agents (Kolstad, 2000). Environmental damage is an archetype of negative externality: it arises when an activity – typically an economical-productive one – originates a reduction in the quality or in the quantity of an environmental good, producing a cost to be borne by the community or a part of it. Siebert (1990) claims that this type of externality is the result of an unresolved conflict in use of the environmental asset. There are many, often conflicting opportunity of exploitation of environment: it is the place for economic activities, it is the object of direct tourism fruition, it supplies raw materials for the production system and goods for the market, it is the final receptor of waste and scrap materials; finally, environmental quality affects directly health and well-being of individuals. According to Siebert's perception, an environmental externality such as the opening of a quarry is interpretable as a conflicting use between the environmental functions of raw materials supplie, and landscape and natural site to be enjoyed.

Another modality to see environmental externalities is due to Deserpa (1978) stressing the existing relation between who produces externality and who suffers from it. According to this classification, externalities can be purely separable, discretely separable or purely in-

separable. In the first case, the agent causing the externality does not bear the consequence in any way (for instance a producer polluting a water stream that supplies drinkable water to a rural centre and living in another place); in the last one, on the opposite, it is impossible to disentangle both the externality producer and the damaged from it (an example is traffic congestion both generated and suffered form the same car drivers). Discretely separable are in the middle, when the same agent suffers only partially from the externality he generates, because he can transfer the majority of related costs on the community (e. g. the same polluter of the first case, living in the same rural centre, but paying only pro-quota water purification costs instead of according to the "polluter payer" principle).

Finally, externality is expressed in a very different way by Kolstad (2000), involving the notion of "public good" (or, better, of "public bad" in case of negative externality). For instance, in this perspective air pollution is nothing more than a public bad, with the standard characters of non-excludability (once the good is provided for one person, it is inefficient excluding other people from the use) and non-rivalry (the use of the good by one person does not reduce the utility of other users), that affect this kind of goods.

1.2.2 An Economics taxonomy for policies

Whatever the notion of externality we decide to adopt, economic science have identified a set of policies to completely or partially "internalize" it into a market mechanism. The rationale of many of them is to extend private costs of the responsible agent for absorbing the external cost he generated, an approach clearly inspired by the "polluter payer principle", the well-known OECD notion now transformed in a pillar of the EU environmental policy.

Economics classifies these policies in four categories:

1. command and control, where authorities set admitted environmental standards through a legislative act (a norm or a regulation), control for the threshold, and punish the cases when it is passed;
2. fiscal policies, such as taxes and subsidization to discourage the production of negative externality and, on the contrary, incentivize the generation of positive ones;

3. contractual policies, where the market functioning is re-enabled by mechanisms such as negotiable permits, compensations, ex-post liability
4. voluntary policies, where certification instruments, environmental quality emblems or process standards as Life Cycle Assessment (LCA), EMAS, ISO 14000, and so on, are not imposed by laws, but they are freely adopted by agents to testify their involvement in the environmental issue.

In next pages we will briefly analyze and comment each of those policies and instruments.

Command and control standards (c&c)

The rationale is that the public body incorporates the property use right on natural resources and dictates a specific behaviour to consumers, producers, and citizens as a whole according to the authority principle.

Typical example of c&c in the environmental field is the setting of a threshold parameter for PM10 in the air in a urban centre or for some kind of bacteria in the water, or the maximum of emissions allowed for an industrial plant.

Fiscal policies: taxes and subsides

Well-known since 1920s, thanks to the work of Arthur Cecil Pigou, taxes and subsides (the latter being nothing more than a "negative tax" in the economics rationale) are implemented very frequently in case of externalities. It works to internalize (only partially, as a matter of fact) the procured damage to the community in the cost function of the private producer. The so called "Pigouvian Tax" is the tax rate imposed to producer to raise its unit cost curve to match the demand curve at the social optimal level of damage.

Due to the Pigouvian tax, the externality disappears (not necessarily the environmental damage), since the whole external cost is transformed in private, while the total production of the good (and of the collateral environmental bad) decreases. In addiction the generated tax-revenue can be used to contrast undesired effects of the environmental damage (for instance of pollution).

On the other hand, like for any other levy even with the Pigouvian

tax the system incurs in distortionary effects, since a part of it is transferred to the consumer in form of a higher price of the good. The tax rate quota the producer is able to charge on the consumer depends on the degree of rigidity of the demand (the more flexible the demand, the lower the quota), an aspect that have delayed for many years the enforcement of a Carbon Tax in many countries, besides of the action of powerful oil and gasoline producers lobbies, and that invests the issue of "double dividend".

Since Tullock intuition (1967) and its revival in more recent times by Pearce (1991), many public economists and policy makers share the conviction that environmental taxation could be enhanced with a contextual reduction of other kinds of fiscal withdrawal much more distortionary, such as the ones on labour.

The partial substitution of individual taxation on job wages and salaries with eco-taxes in conditions of fiscal balanced budget, would give entry to a double dividend: on one hand (the first dividend), the higher environmental taxation would discourage the production of polluting and emission-responsible goods, affecting positively the social well-being. On the other (the second dividend), the lower taxation on labour income would favour job creation and employment.

Double dividend has been a very hot issue in the mid-1990s, when the European Commission under the Presidence of Jacques Delors published the *White Book on economic growth, competitiveness, and employment* (European Commission, 1994), that launched the opportunity to use eco-taxes as a political economy tool just because of the double dividend matter. Since 1992, European Commission explores the opportunity to introduce a tax on fossil fuels, considered as the main responsible for carbon dioxide emissions. In this occasion, the debate on a so called Carbon Tax is opened, but the issue is rapidly abandoned because of the strong disagreement opposed by many Member States. In those years the initiative is kept alive by Germany, that enforced a tax on mineral oils in 1995, followed by Denmark, Finland, Norway, Sweden and the Netherlands, even though with different tax systems: "More environment fires people", seems to be.

In countries such as the US, Australia, New Zealand and Switzerland, the introduction of a Carbon Tax has been proposed, debated and abandoned for a long while, given the opposition of industrial rep-

resentatives because of the rising production costs the tax would have induced according to their estimations. On the last position is rooted a relevant critical approach to double dividend issue. Authors like Parry (1995), Bovenberg and Goulder (1996), the eco-tax would reduce the purchase power of consumers through a general rise in prices, inducing a consequent reduction in well-being and a contextual reduction in labour supply through a shrink in real wages. Exactly the opposite of the claimed main result of double dividend story, with a strong emphasis on the hypothetical competition between environmental protection and job creation policies, so that it has even been labelled as counterintuitive by (Goodstein, 2003).

But this is a static analysis, not dynamical: if it is true that a higher taxation ends to increase prices and to reduce the supply of hit goods - but leaving apart the consideration that reducing the trade of environment affecting goods is exactly the hoped outcome of an eco-tax policy – proponents of this version seem to forget that the use of the good is not affect by the tax, so that there would be a shift from a kind of goods to some other substitute (whose supply would increase at equilibrium); a second neglected subject is that environmental amelioration (the first dividend) would reduce defensive and health expenditures by consumers, increasing in this way their real wages, and their work productivity (because of the lower number of lost days for health reasons). For all those reflections, a Carbon tax enforcement seems to increase and not to reduce the labour supply and demand (Schwartz and Repetto, 2000).

The final effectiveness of an eco-tax such as Carbon Tax in terms of double dividend is still controversial. Besides of some scepticism on the long-time persistency of the second dividend, some doubts involve the real sustainability of a mechanism that on one side works to reduce the consumption of externality producing goods, and on the other relies on it to guarantee the necessary tax revenue to finance public expenditures.

A second fiscal instrument included in this class of policies is the environmental subsidization, i.e. a scheme to fund producers and agents not to generate externality. Different kinds of subsidization are the reimbursement of environmental clean up or the total of partial fund-

ing for the acquisition of clean technologies, the fiscal exemption of investments aimed at limiting externalities or the restitution of the loss of income due to the renounce to run some business activity (typical in agriculture).

Subsidization is paid by public authority, so that – by extension – it is paid by the same community that suffers from externality. This means that subsides could have an effect on the reduction of environmental damage, but not on externality, since the external cost is simply turned in a fiscal charge: there is no internalization of externality, contradicting the polluter-payer principle.

This kind of incentives face other problems: first of all, subsidization is strictly observed by European Commission, ready to sanction as State aid any public monetary incentive that favours national firms. In addition, subsidization has conservative effects on firms, that are not stimulated to reduce their impacts nor to take eco-innovation paths.

Finally, according to many experts subsidization has a perverse effect on the total quantity of externality (for instance emissions), since it increases the firms' turnovers and favours the entrance of new companies in the market. So, the reduction of externality at the single firm level is more than compensated by the increasing in the number of firms at the industrial level, the situation that affected for instance the motorcar sector when subjected to the so called "eco-incentives".

For all those reasons, subsidization is considered one of the most ineffective and problematic policies for environmental amelioration.

For policies examined insofar, the public authority's action plays a key role; in the first case, the authority imposes rules to follow, ensures that they are respected and defines the disciplinary measures to be taken towards those who does not keep it. In the second, it identifies the required level of taxation or subsidy, given the cost of doing business, to discourage the production of polluting good or to encourage the environmental clean-up activities.

In both situations, a consistent effort and consideration from the economic viewpoint is required to the public authority; regarding to the c&c the authority must establish a framework for analyzing and monitoring be able to define the standards to be adopt and to verify compliance with the enacted standard; in the second, it must be able

to identify as precisely as possible not only the environmental impact of production and disposal-clean up costs, but also the private costs of enterprise, so as to fix the amount of taxes and subsidies to be effective in reducing the externality.

The need to achieve better outcomes in the environment defence, together with the budget problems common to all governments of the developed countries, has fostered new styles of policy making, based on cooperation between economic and social actors rather than the imposition of regulations and decisions from above. It is thus to create a kind of "triangulation" between public institutions, which give up the traditional authoritative position in favour of flexible modes of intervention, representatives of the economic-productive, not only identified as "part of the problem", but also as "part of the solution" and therefore involved in the definition of the policies themselves, and citizens-consumers, able not only to influence the market through their choices of consumption, but also to organize themselves into pressure groups and gain the ear of the political power and decision-making. (Frey and Araldo, 1999).

This pattern of relationships has raised criticism from more than one study of political science and administration, getting to coin for it the term "neo-corporatism". Recently, doubts have been raised by other theorists on the validity of a "breakthrough contracts" that seems to create an increasingly strong relationship within the public administration (Bobbio, 2000).

Whatever the true nature and the real reasons for this trend, it should be noticed that also in the environmental field have been claimed new tools, based on the involvement of the same individuals normally recipients of them. These tools, which provide for greater accountability of companies and a broader appeal to the market, are negotiable permits and bargaining on the resources use.

The use of negotiable permissions (or rights) is indicated, at least theoretically, in the contexts in which the load capacity or disposal of an externality - such as the emission of pollutants - is calculated with some accuracy by environment.

The contractual nature of the two tools that we are going to analyze, for the negotiable permits are those which still see a significant intervention by the public. In fact, it measures the capacity of the

environment in question with its own technique agencies and enacts unilaterally emission permits, which are then purchased by businesses according to their own needs.

The theory of negotiable permits, therefore, provides for the creation of a market for these instruments on two levels: one "primary" in which the offer is held by the public authority and demand is represented by the producers of externalities, and a " secondary", in which individuals can freely exchange their rights put into circulation by the public entity . The ability to purchase a permit to pollute by the authority or by a competitor does not mean that the company is no interest to reduce its environmental impact: the fewer emissions production or their technology improvement to clean-up allows to this last one to reduce spending on negotiable permits, increasing their profits. This consideration allows to check how the discriminating factor deciding what amount of permits to buy is not only their money, but rather the cost of internalization alternative techniques for businesses.

To better understand this aspect, it should be considered that each firm has a dual opportunity: to produce externalities (for example, consider a case of pollution) by purchasing the amount of permits that allows him or proceed to the depollution and related costs. The comparison between the unit costs of emissions abatement and the price of permits, leads each firm to identify the amount of permits to be purchased; the sum of the permissions required individually identifies the application for permits; because of the supply of permits is determined by the rigid and from the carrying capacity of the environment.

The secondary market for permits, if not regulated, can be a source of inefficiency as a result of two sets of issues: the first problem is the danger that only one company with sufficient financial resources issued by the public entity and resells rights making money profits unmotivated, or - in oligopolistic markets with strong initial impact of fixed costs - which uses them as a barrier to entry to potential competitors; the second is instead represented by the risk that a not very productive enterprises or has gone out of business engages in a speculative activity, such as resale at a higher price of permits purchased on the primary market. Both cases assumed to refer to the need for the public body does not just decide the number of permits to be placed on the primary market, but also acts as a real authority for the transparency of the sector.

Despite their first theory goes back more than 40 years ago, negotiable permits know still a modest and difficult application. After the first pilot projects for the control of emissions into the atmosphere made in Germany and the United States (Bresso, 1993), currently the best known example of tool that adopts the ratio of permits is the sale of emission rights in the context of 'Emission Trading System (ETS) provided for by the Kyoto Protocol. The principle, set forth in Article 3 of the Protocol, states that - once established emission limits of greenhouse gases for each subscriber country - allowed the transfer of emission rights between the parties: if a country is particularly virtuous and succeeds to cut emissions below the limits assigned target can break (for a fee or for free) their surplus killing in another member of the delay in performing its objective; in the same way, a country that, with its own technology, should have particularly high costs to reduce emissions below the agreed threshold, it may find more convenient to buy from an other member the right to produce emissions.

In Italy, a similar mechanism has been inaugurated in the energy market with the introduction of so-called "Green Certificates" and the establishment of the "Energy Exchange". The tool was created by the imposition on all the subjects that are net importers or producers of electricity into the grid from 2002, a minimum share of energy from renewable sources, equivalent to 2% of non-renewable energy produced or imported by these subjects in the previous year. Every electricity producer can respect this legal obligation by working to produce their own share of "clean energy" provided or purchasing from third parties permission to keep unchanged its offering of energy from non-renewable sources. This permit, called "Green Certificate" represents an out-and-out right to pollute, bought from a manufacturer that does not have the technological capacity to respond to the standard fixed by the government and relies on this to those producers who, on the contrary, has adapted quickly to the new rules. The price of Green Certificate - each of which corresponds to 100 MW/hour of electricity - is set by the encounter between demand and offer on this secondary market, called Energy Stock Exchange.

It should be noticed that, in this as in the previous example of the ETS, the primary market is dominated by an offer public entity that does not produce nor sell negotiable permits, but it makes them pos-

sible by setting quotas - abatement in the first case, production of clean energy in the second - and by allowing the flexible mechanisms of their transfer among the recipients.

A second instrument that represents a contractual policy has been proposed for the first time by Ronald Coase (1960), getting a growing influence along time. The mechanism, known since then as "Coase theorem" claims that the social optimal level of externality is identifiable by the negotiation between different categories of stakeholders with conflicting objectives. To reach this social optimum public authority have no role to play, but to assign ex-ante the right of use (called "property right" by Coase) of the contested resource - being it a natural resource, a waterstream, or even the whole atmosphere upon a place - to one social part: it is left to the free bargaining the opportunity for the granted owner of the right, to give it up partially or completely for a compensation, both monetary or not.

Considered for many years nothing more than an elegant model with low correspondence in the real world, a theoretical interest for economists, negotiation and compensation schemes have known a growing relevance in last years, when conflicts on environmental, social and political choices have boomed throughout the world. Nowadays, is not so rare to meet cases of monetary compensation to accept the construction of a liquefied natural gas terminal or the implantation of a wind rotor inside the municipal territory, or even to direct agriculturists to limit their production of goods in favour of eco-friendly activities such as set aside, reforestation and other actions for the ecosystem's safeguard.

Finally, we can include among the contractual policies even a third instrument: it is ex-post liability, working as a kind of insurance addressed to solve the environmental externality induced by an activity, so that they are even called "Deposit-fund schemes". The rationale is to identify ex-ante the responsibility for an action with environmental damage potentiality, and to charge ex-post compensation costs if the event takes place.

Many authors consider a liability rule even the well known "Extended Producer Responsibility" (ERP) principle, which claims that all actors along the goods production and retail chains are responsible for the final destination of them. This implies therefore that they should

be involved in the complete life-cycle of their products "from cradle to grave" or, once applied to the waste issue, that each industry must guarantee the achievement of reuse-recover targets, and of proper disposal of last materials.

The principle have been acknowledge by EU in 2004, with the EC Liability Directive (Directive 2004/35/EC), that establishes a common framework for liability with a view to preventing and remedying damage to natural habitats, water resources, and land, ensuring that the operators responsible take or finance the necessary preventive or remedial measures themselves.

Voluntary policies

The attention for the environmental impact of the production processes and of the products themeselves is a condition progressively more requested by public opinion and firms' customers, so that any industry shows nowadays a growing awareness for them.

In last years we observed the diffusion of many environmental quality standards, from Life Cycle Assessment (LCA) to the EU Environmental Management and Audit Scheme (EMAS), from the International Standard Organization 14000 rule (ISO 14000) to EU Ecolabel and many other emblems and seals.

All these instruments act for the continuous improvement of environmental performance of firms, according to time and criteria adequate to their needs and possibilities. Standards works as flexible guidelines to design programmes for the environmental management inside the firm, the monitoring and systematic check of the process, the communication of hit target to public opinion, consumers and stakeholders.

After the enforcement of EMAS, Ecolabel, and ISO 14000 in the 1990s, environmental certification has spread rapidly, both for the market appreciation (green standards and labels are growingly requested by consumers in mature markets), and the shareholders and clients approval, since they witness the diligence of the firm in running its activity.

In theoretical terms, certification is a "signalling" tool, that allows a transmission of reliable information putting the burden of its cost upon the more informed part in the marketplace, namely the producer.

When externalities do exist, public authority on one side must waste money to check, on the other it has to do it in condition of lower information with respect to the externality producer, with the risk to fail in maximizing the effectiveness of the intervention. In such cases, the producer could be driven to implement an unfair action of "moral hazard", i.e. make an arrangement with the community to control for the environmental impact of his activity, and not comply.

Since the checking activity is costly and complex, the voluntary certification (through EMAS, LCA or Ecolabel, just to mention the most famous tools) solves the moral hazard problem, charging the most informed part, besides of the responsible for the externality, with the burden of the proof (even financial).

1.2.3 Static and dynamic results

In this section we have considered different policies and instruments to deal with the environmental issue; we categorized them in four classes (c&c standards, fiscal, contractual, and voluntary).

The classification of policies and instruments is not immutable and it does not mean that they cannot be combined to reach a better result. In cases of incomplete information on real internal costs of the polluting firm, for instance, the mixture of pigouvian tax, subsidization and negotiation leads to better results in terms of internalization than the alternate use of one of them (Sauer *et alia*, 2003). Mixed policies, namely a c&c rule combined with a Coasian compensation scheme, seem to work better even in case of conflicting activities in a sensitive naturalistic place (Silvestri, Ghinoi, and Barone, 2013).

Each instrument showed some favourable aspects, and arguable characters with respect to four orders of questions: effectiveness (ability in pursuing the objective); efficiency (best relation among costs and results); pro-activity (ability in stimulating eco-innovation); and ethic (in terms both of respect for future generations and for non-human races, and correct imputation of internalization costs to the responsible for externality).

The assessment of instruments and policies according to these multiple criteria allows to see in the voluntary policies (environmental certification) one of the best instruments, while much more doubts

are entailed by subsidization and negotiation schemes. The following qualitative matrix can be useful in this sense:

		(Static) Effectiveness	Efficiency	Pro-activity	Ethical
Norms	*c&c*	+	—	+	+
Fiscal policies	pigouvian tax	+	=	+	=
	subsidization	—	—	—	—
Contractual policies	tradeable permit	+	+	+	—
	negotiation	—	+	—	—
	ex-post liability	=	+	—	+
Voluntary policies	certification	+	+	+	+

Tab. 1.2: Assessment on the different policies and instruments for externalities

From the table we observe that, with the exclusion of certification, moving ideally from public to private nature instruments means a higher economic efficiency in substitution of ethic compliance.

More specifically, it is worth to remark some aspects arose in the previous pages: the ineffectiveness of subsidization with respect to the objective of internalization, a consequence of the perverse effect of incentives on new entries, with increase in the number of operating, and polluting, firms. The negative valuation, in the same criteria, for negotiation *à la* Coase is due to the fact that these instruments surely imply compensation of the environmental damage, but they could maintain or even increase it. Other items to be emphasized are the substantial neutrality assigned to Pigouvian tax with respect to efficiency, a judgement that could not be entirely positive because of the difficulty in calculating exactly the efficient tax-rate, and to ethic performance, since producers can easily transfer part of the internalization costs on consumers. In many authors and part of the public opinion there is a negative perception on ethics of tradable permits, even if characterized by efficiency and effectiveness, because descending from a public action that – setting an admitted level of damage - allows and do not punish the production of externalities.

Another relevant aspect to be considered is the pro-activity of different policies, meaning the aptitude of a policy to force the concerned agent to improve his performance and to induce ecological innovation inside the firms. This is a subject that involves the notion of dynamic effectiveness, i.e. the capability to reach higher outcomes in the future.

The link between environmental policies and competitiveness has been the focus of economic debate for decades. Up to 20 years ago, the economic discipline was dominated by the idea that any attempt conducted by environmental planning in internalizing externalities, for instance abating pollution and emissions, would necessarily translate into an increase of internal costs for the compliant firm. Many theoretical studies during the 1970s (Pethig, 1975; Siebert, 1977; McGuire, 1982) maintain that environmental policies, increasing firms' internal costs affect countries' competitiveness, decreasing exports, increasing imports, and lowering the country's general capacity to compete on an international market.

In addiction, if production factors are free to move across countries, more stringent environmental policies in the long-run can produce movement of the manufacturing capacity from more regulated countries to less regulated ones (which are often called "Pollution Havens"). In this view, c&c regulation for example, which restricts the choice of technologies or inputs in the production process, would increase the constraints a firm have to face, while taxes and tradable permits, charging for production by-products (waste or emissions) would generate costs that did not exist before regulation.

Nevertheless, in the last two decades, many scholars have challenged this dominant idea. The most famous among them are Porter and Van der Linde, whose different contributions (1991, 1995), strongly criticised this approach, underline that the consolidated paradigm was not considering all aspects of the environmental regulation/competitiveness relationship. Moving from the static approach in which technology was held constant to a dynamic context, the authors showed how in practice some of the loss of competitiveness related to environmental regulation was compensated by an increase in innovation driven by the policy itself. In the view of Porter and Van der Linde, a properly designed policy framework may make pressure on firms, pushing them to develop new innovations and promoting technological change. Within

this view, the additional policy-driven innovation may offset the loss of competitiveness due to the additional costs of regulation.

Porter and Van der Linde (1995) show how regulation can specifically act through five different channels:

1. policies signal resource inefficiencies and potential technological improvements to companies;
2. policies focused on information gathering, can achieve major benefits by raising corporate awareness;
3. a policy reduces uncertainty in pollution-causing activities;
4. by putting pressure on firm cost function, regulation motivates cost saving innovations;
5. regulation makes free riding behaviour in the transition phase through a more difficult innovation-based equilibrium.

Based on this seminal work, Jaffe and Palmer (1997) discerned three different implications of the so called "Porter hypothesis", proposing an helpful taxonomy in distinguishing the different lines of research that have further developed. The first idea, also called the Narrow Porter Hypothesis, shows that certain types of environmental regulations are able to stimulate innovation, following the idea that policy design matters, and command and control policies are generally (with exceptions) less efficient than economic tools in promoting innovation and technical change. A second (weak) version of the Porter hypothesis states that a well-designed environmental regulatory system may stimulate certain kinds of innovation. Finally, the strongest version of the Porter hypothesis claims that not only regulation is able to spur innovation, but also that this gain in efficiency is able to completely offset any loss in competitiveness due to compliance costs. In other terms, this last approach suggests that more stringent and well-designed regulation promotes competitiveness.

Beyond the theoretical contributions discussed above, the core debate around the Porter hypothesis has been developed through many different empirical studies. Following the survey conducted by Ambec *et alia* (2010), these works can be divided into three different macro areas, representing three different connotations: weak, strong and narrow.

Porter and Van der Linde (1995) argue that policies (c&c regula-

tion in particular) must respect three principles in order to be able to spur innovation:

1. they must leave the approach to innovation to firms and not to the regulating agencies;
2. the stringency of the instrument must improve continuously, and avoid locking-in any particular technology;
3. the regulatory process must be certain and time consistent. Potential uncertainty of the policy lever could increase the risk investors face in the market, slowing down innovation.

On the other hand, market-based and flexible tools, such as taxes and tradable certificates, are more favourable, since they leave firms more free to find the best technological solutions to minimize their compliance costs.

A good example of this subject is given by the analysis of the EU Emission Trading System (ETS). ETS and its ability to promote innovation have been analysed extensively at a theoretical level (Ellerman et alia, 2010; Borghesi, 2011; Zetterberg et alia, 2012, among others). However, there are not any extensive empirical investigations of ETS's effects on innovation, apart from a few case studies, providing some interesting sector-specific evidence (Rogge *et alia*, 2011, on energy sectors in Germany).

Overall, they show that the impact of the ETS on innovation has so far been limited because of the scheme's initial lack of stringency and predictability, along with the relatively greater importance of contextual factors. Additionally, the degree of impact varies significantly across technologies, firms and innovation dimensions, and is most pronounced in Research and Development (R&D) on carbon capture technologies and organisational changes.

In conclusion, recent literature, in the hypothesises of Porter and Van der Linde, rejects the idea that a stricter environmental regulation induces a non bearable cost on firms; if this condition is verified in the short-run, they claim that environmental policy is more rigid, its proactivity is higher and, as a consequence, also the long run performance of the firms is higher.

Chapter 2

The Partners and the capitalised Projects

2.1 The Partners and the contexts in which the projects have been developed

The 11 projects dealt with in this report have been implemented by the following partners.

2.1.1 ENEA

Enea is the Italian National Agency for New Technologies, Energy and Economic Sustainable Development. It works at national level, in order to apply research activities, technology transfer and dissemination of innovation to companies.

The Italian country is characterized by a strong manufacturing sector and small and medium enterprises localized in industrial areas in the neighbourhood of urban centres. They are the driving force for the economic and strategic development of territory. The economic crisis and the climate change has highlighted the need of a resources optimization for productive processes and services, in order also to compete in global and international markets. Sustainability, in its economic, social, environmental and political-institutional dimensions, is the key for driving enterprises to a strongly competitive economy. Green economy and eco-innovation offer new development perspectives to industrial areas in terms of energy savings and efficiency, renewable energy, re-qualification energy and waste and environmental impact

decrease. A sustainable management of industrial areas means also a renewal of public and private transport infrastructures, public utilities, goods and services and an innovative industrialization process. Italian government promote a transition of industrial areas to APEAs (Italian acronyms of Ecologically Equipped Productive Areas), introduced by the law 112/98. They are characterized by high-quality ecological standards and innovative services for enterprises: shared spaces and installations, unitary management, incentives and simplifications; they have essential infrastructures for health, safety and environment safeguarding. Some Italian regions have a specific regulation on industrial areas ant it could be an advantage. The Italian framework shows an overall weak presence of facilities, unitary management, centralized infrastructures and shared services for SMEs and a common lack of waste management system all over the country. No particular attention is been given to the social and services aspects (kindergarten, public transport and offices…).

The MEID project analyzed eight areas which can be considered as the best examples of responsible environmental management in the whole country:

- Macrolotto Prato (Tuscany)
- Furnishing District - Province of Pesaro – Urbino (Marche)
- Industrial Area of Ponterosso of San Vito al Tagliamento (Friuli Venezia Giulia)
- SPIP of Parma (Emilia Romagna)
- Paper District - Province of Frosinone (Lazio)
- SENOMI – Milano (Lombardia)
- ASI Ragusa (Sicily)
- ZIP Padova (Veneto)

All the examined areas has a Managing Company, with a mixed private and public management, that provides environmental services. It influences entrepreneurs behaviour by providing environmental analysis, monitoring and improvement plans. The centralized infrastructures are specialized in energy, waste, water, habitat and landscape, emergency an safety management, hi-tech networks, and social actions. The first six are mainly middle size enterprise specialized in paper and furnishing. The Ragusa industrial sector has around 296 SMEs localized in

a large area with a plan of enlargement with a sustainable approach. The APEA path is just started and much more have to be done. A weak regulation exists at regional level and no economic incentives is provided for APEA. The planning phase do not show the involvement of stakeholder representative of territory and the consideration of environmental aspect.

According to European legislation on Sustainable Consumption and Production and the Integrated Product Policy, the Ministry of the Environment and the Protection of Natural Resources outlined the Inter-ministerial decree n°135/2008 (11th April 2008) that establish an Action plan for the environmental sustainability of consumption in the public administration sector (National Action Plan on Green Public Procurement - NAP GPP). It is a normative instrument for integrating environmental criteria in the procurement processes of public authorities and for influencing their behaviour in terms of sustainability. It aims at disseminating GPP knowledge and application in Government and public authorities, in order to reduce volume spending and environmental impact of products, goods and services. The priority sectors of intervention are 11 categories: furnishing, building, waste management, urban and country services, energy services, electronics, textile and footwear, stationery, catering, building management services, transport. Strategic issues for Italian GPP strategy are the following:

- efficiency and savings in the use of resources, especially energy, thus reducing CO2 emissions;
- reduction in the use of hazardous substances;
- quantitative reduction in waste products.

The dissemination of GPP depends on other support actions such as communications actions, training measures and monitoring. The yearly Finance Act describes the financial coverage of the plan. In order to assure a sustainable management of enterprises, Italian legislation adopted European EMAS scheme in the legislative decree n°152/2006 (Environment Regulation) to promote environmental management implementation, in order to continuous improvements in the environmental performance of organisations.

The law 112/98 outlined the APEA (Ecologically Equipped Productive Areas) and invites Region authorities to identify them. The

Italian Ecolabel-Ecoaudit Committee introduced EMAS APO Regulation, a simplification instrument for APO (Italian acronyms of Homogeneous Production Area), an industrial area, a district or industrial areas union that register themselves to EMAS scheme.

2.1.2 The Province of Bologna

The Province of Bologna is a local authority with its own autonomy. It has administrative and functions in terms of environment, territorial planning, economic development, public health.

Bologna area has a strategic geographical position for national market, territorial development and a competitive economy. It is localized in the middle of production and distribution traffic that happens on the one hand between northern and central-southern area, on the other hand between central-northern Europe and the Peninsula. For this reason, it is characterized by relevant economic and structural infrastructures: railway and road networks, an international airport and broadband services. Small and Medium enterprises characterize local productive system and they are mainly localized in industrial areas. The most production is represented by manufacturing sector, as in the Mediterranean region. These industrial areas have a strategic importance for the local development. SMEs have a flexible structure and a high ability for answering to market innovation, but sometimes small size could be a disadvantages for access to credit, in terms of supply and product sale. Trade associations have an important role to support enterprises in national and international markets to promote products. The manufacturing specialization is mechanics: carpentry, industrial and agriculture machineries, packaging machineries and electronics. Other important manufacturing activity is textile sector. The most enterprises have their own logistics activities and use them in autonomy, without IT systems. During meetings in Ecomark project, enterprises showed a weak awareness of logistics activity for improving business competitiveness. On the other hand, new economy challenges emphasize the need of a integrated sustainable approach to industrial sectors for increasing attractiveness and enhancing positive externalities. The Province of Bologna promotes the qualification of its productive areas for APEA realisation by energy saving research, implemental logistics

services, technical support, guidelines and European project . At the moment, five pilot areas are in development phase with approved enlargement plans with high-quality environmental and infrastructural standards. A gradual re-qualification of several existent fields is developing with shared infrastructural and services incentives. Four of these are upper council strategic areas for the territorial development, localized in territories with a high accessibility and a low environmental exposure. Within these areas, numerous SMEs have been settled. Furthermore, an experimentation have started in a mountain area such as economic driving force for valuing the territorial wealth (renewable energies, wood supply chain and healing herbs). In the province of Bologna, several industrial areas or EIPs have showed a relevant sensitivity in environmental and logistics management, communication strategies and research initiatives. These cases are the following:

- Energy Park – Technology Centre Val Limentra: a small number of enterprise belonging to various sectors such as renewable energy, production of cosmetic products and pharmaceuticals, hi-tech;
- Area of S. Carlo: characterized by a mixed sector (63% manufacturing);
- Ponte Rizzoli: a mixed productive sector, manufacturing (engineering, chemicals, automotive sector, production of electronic machines, production of plastics) and services sectors;
- Tavernelle: the manufacturing sector is the most (production and processing of metals and machines; food farming, construction, weaving industries, production of plastics and electronic equipment); there is also a company leader in the production of gears;
- Cento di Budrio: the productive sector is various, mainly from manufacturing, commercial, construction, transport and storing.

The Province of Bologna and the Emilia Romagna Region will organize communications and green marketing actions for the Energy Park – Technology Centre Val Limentra and the Area of S. Carlo. These productive areas have different actions for promoting a sustainable management: sustainable management systems for energy production

and waters, efficient and low energy public illumination, high level of green public and private spaces, cogeneration systems, technological systems to reduce the consumption and improving the quality of recycled material, planned high standard of energy efficiency for buildings. Research, innovation and development actions and green marketing plans have to be implemented in all these cases.

Emilia Romagna Region supports sustainable actions for enterprises and public administration through the regional law n° 28/2009 (l.r. 28/2009) on public consumption and GPP. Local authorities adopt a three year plan on GPP. The Region instituted the regional agency for centralized procurements (Intercent-er), for orienting public procurement toward environmental responsibility.

2.1.3 Sant'Anna Superior School (SSSUP)

The Sant'Anna School for Advanced Studies (Scuola Superiore di Studi Universitari e Perfezionamento Sant'Anna, hereafter SSSUP) is a special-statute University operating in the field of applied sciences. It offers high-quality and continuing education, assures the continuous interaction between research and education, promotes the development of scientific and technologies research and innovation.

Tuscany Region has a manufacturing sector characterized by fashion industry, metalworks and transportation. Relevant are the commercial/business activities and public sector. The local productive system do not have important IT and professional services. On the other hand regional specialisation is in public services, trade and hotel sector. The competitive advantage of Tuscany productive system is the presence of small size enterprises network that driven the local development of different productive systems and the regional industrial competitiveness. In the regional territory there is a knowledge heritage localized in cultural and scientific centres, university and enterprises. In some cases, the link between research centres and enterprises is weak. The economic crisis creates a demand-offer and productive activities decrease. Nevertheless, Tuscany region has strengths and opportunities to improve its economic system: enterprises that represents excellences on international markets, high and widespread entrepreneurial capacity; positive strategies of districts; technical-scientific qualified human cap-

ital; opportunities to develop industrial relationships and new clusters; high R&D expenditure; widespread research centres taking part of international networks; strengthening of European policy in the field of technology transfer; renewable energies use; relevant attractiveness of cultural, environmental and landscape goods; protected areas network and forest heritage; REACH Directive implementation. After these reflections, it is possible consider local economic system characterized by:

- traditional system of districts and made in Italy handcraft;
- international scientific and technological research and high-quality technology for few and relevant enterprises sectors;
- a widespread tertiary with landscape and environmental resources (tourism, cultural goods and demand);
- agricultural and food production based on Tuscany tradition.

Tuscany is in the middle of the northern-southern linkage and this have influences on pollution and constructions. Other advantages and disadvantages are from Tyrrhenian corridor. Environmental problems derive from inner regional aspects: installations, population, productive and services activities with a strong pressure on natural resources. Urban density of the metropolitan areas and the lack of appropriate transport with a low environmental impact create disadvantages and imbalances of resources use in terms of sustainability.

Member states of EU have to outline national decrees for implementing directives. The European Commission is moving to an integrated sustainable approach for all policies, in order to preserve natural resources and ecosystems and to promote innovation. EU outlined the 96/61/EC Directive concerning Integrated Pollution Prevention and Control (IPPC) that lays down measures designed to prevent or to reduce emission in the air, water and land, including waste, for achieving a high level of environmental protection. It regulates permits of new installations, requirements for the granting of permits for existing installations, application and conditions of permits. EU sets emission limit values, in accordance with the Europe 2020 Strategy and the Sustainable Consumption and Production Strategy. The IPPC Directive was adopted in Italy with the national legislative decree n°372/99 - further developed with national legislative decree n°59/05 - that disciplines the Integrated Environmental Authorization (IEA) according to

IPPC criteria. Other national decrees outline several IPPC aspects such as the institution of a IPPC Commission for defining and the integrating the BAT (Best Available Technologies) guidelines; technical documents to submit the permits; the redefinition of National Competent Authorities in IEA.

At regional level Tuscany Region Government adopted IPPC issues with the regional deliberation n° 61 in 2003, by which identifies the 10 Tuscany Provinces (in some cases is the Ministry of Environment) as IPPC Competent Authorities. Other regional legislative acts support the IPPC implementation: the deliberation n°841/2002 and following modifications about deadlines of the presentation of IEA applications by operators; the deliberation n°151/2004 and the decree n° 1285/2004 that create the Coordination Technical Committee and members appointment. From a financial viewpoint, some deliberations support the IEA application. Regional analysis identifies weakness and strength points of implementing IPPC Directive in Tuscany Region:

- weakness: BAT national guidelines and permits application delay; difficult law adaptation to the firms; considered only large installation; no consideration for the complexity of environmental aspects;
- strength: an integrated sustainable approach on firms activities; encouraged firms to enhance environmental performances.

Also related to an administrative side, there are problems about IEAs practises, lack of personal training of Competent Authorities, lack of incineration of hazardous waste in IPPC sectors. ON the other hand, the integrated approach allow to consider pollution aspect. The Tuscany Region adopted the Environmental and Energetic Regional Plan that promotes SCP and aims to disseminate sustainability practices and management tools (GPP, Agenda 21...) for enterprises, local authorities, consumers and industrial areas.

2.1.4 SCR Bistra Ptuj

SCR Bistra Ptuj is a public institution involved in planning and managing development of municipalities in Spodnje Podravje region. It operates in the fields of local development, links universities and insti-

tutes with economy and knowledge transfer and stimulates and creates knowledge and human resources.

Spodnje Podravje region has a relatively densely population and is mainly an agricultural land. It is localized in the North-east of Slovenia country. The region represents an area with common development issues and several development opportunities in the fields of economy, social life, culture, spatial planning and environment. The region includes 16 municipalities. The hills and flatland form a mixed sedimentary area, consisting of sand, clay, gravel, sandstone, marl and limestone, while various geomorphologic processes have created different faces like steep hills, ridges, valleys and terraces. The economic crisis hits also Slovenia and it need a sustainable and potential growth to step out from recovery, by promoting green growth and more flexible labour and product markets. Direct technology transfers and spillovers are essential to improve competitiveness at regional and national level. Environmentally friendly policies are the drivers to promote a sustainable recovery and growth. Slovenia has a rich biodiversity and landscape, but it is also characterized by habitat loss and fragmentation from urbanisation, development of infrastructure and intensive agriculture. Structural policies needed to foster and strengthen the integration between environmental aspect and economy. Slovenia raises environmental taxes, high rates of fuel consumption growth to improve positive externalities and contribute to fiscal consolidation. Taxes applied to other fuels reflect the environmental costs associated with emissions of greenhouse gases and traditional air pollutants. Slovenia needs to consider environmental subsides as strategic instruments for implementing a long-term sustainable strategy and strengthening financing of environmental infrastructure by local authorities to realize economies of scale. Green innovation and dissemination represent a fairly unexploited source of green growth (OECD 2012c). Slovenia should use more research vouchers, funded by EU funds, for promoting eco-innovation and it should consider to introduce congestion charges. Slovenia has also an intensive agricultural and food sector that needs best environmental management practices, as in the Mediterranean area. Eco-innovation should be encouraged also in the agro-food sector for improving the integrated approach to economic development by reducing environmental impact arising from agribusiness; it is

necessary to take care of waste minimization and water consumption during producing phase, especially on input material (meat). Environmentally solutions aims to foster the identification of technologies for applying sustainable management of production processes in agro-food sector that allow to reduce negative externalities for the environment.

Slovenia do not adopt any specific policies for SCP, but all municipalities must adopt the new programme strategy Environmental Protection. The National Action Plan for Energy Efficiency for the period 2008-2016 (AN-URE) represents a planning document which will help Slovenia to achieve the objectives of Europe 2020 Strategy. Slovenia also adopted Regulation on GPP at national level. The Ministry of Environment and Spatial planning has in the Environmental Protection Act (EPA) to foster sustainable consumption and production patterns. It identifies the related economic and financial instruments: environmental taxes, insurance, bank guarantees and other investment for reducing environmental impact. It also provides the support for eco-labelling and promotes the integration of EMAS scheme in organizations and enterprises for an efficient environmental management.

2.1.5 Sostenipra - Autonomous University of Barcelona (UAB)

The research group Sostenipra (Sustainability and Environmental Protection) aims to develop tools – Life Cycle Analysis (LCA), ecodesign, ecoefficiency, material and energy flow analysis – and environmental protection.

Catalonia is a Spanish Autonomous Community localized in the Northeast of Iberian Peninsula. It makes a relevant contribution to the Spanish economy. The region has its own cultural and language heritage with a diversified industrial base and technology sectors. Innovation is essential to ensure a sustainable economic growth. Spain is specialized in medium and low high-technology sector, but Spanish economy needs higher level of innovation and skills for a global competitiveness. Catalonia is also a commercial trading hub in the Mediterranean area and has a relevant tertiary and a increased construction sector. The primary is the lowest and manufacturing is technology-intensive. Other Catalonia's specialisation are market and financial services. Metal products and food are the most important activities in

terms of employment and other contribution derived from chemicals, vehicles and machine manufacturing. The presence of SMEs and different areas of specialisation enhanced the development of several local production/productive systems, especially across the metropolitan area of Barcelona. The largest in terms of employment includes metal products, automotive, plastic materials and chemicals. Agricultural products and textiles are mainly concentred outside of Barcelona such as cotton spinning, machinery for the food industry, wood industries, decorative ceramics… Innovation activities are localized in the leading metropolitan centres and in industrial districts. The Catalan and Spanish economies are characterized by small size and family-owned firms. A relevant experience in Spanish economy is the internationalisation and there is also a significant settlement of foreign firms.

According to Europe 2020 Strategy, the Catalan Government drawn up the Catalonia 2020 Strategy (ECAT 2020) with the participation of economic and social stakeholders. Among others six priorities areas of action, there is also the green economy and a strategy to support the transition to a more resource-efficient economy. Industry has to take up the challenges of moving towards a low carbon emission economy and a sustainable growth. The Government promotes actions for a sustainable use of natural resources, the protection of ecosystems and biodiversity, renewable energies, and the natural heritage preservation. The transition to a more resource-efficient economy means the dependency on fossil fuels decrease, energy prices rise, security of supply, emission of greenhouse gases reduction. In this way, it creates opportunities to energy sector, industry and tourism. Local authorities should have the key role in facilitating the sustainable growth by promoting voluntary agreements, providing support for energy and environmental services companies, helping SMEs to adopt green technologies and introducing green public procurement. In the fields of waste and energy, measures focuses on efficiency and developing new and emerging technologies. The Strategy aims to develop a sustainable production model also by providing aid for investment and research into machinery for waste minimisation and energy generation from waste and promoting recyclable products. To be more precise in terms of sustainable consumption and production policies, the Ministry of Territory and Sustainability set up the Catalan Eco-design Programme (ECODIS-

cat) realized by a public participation to establish the added value of eco-design in local economy. It focuses on certification systems, eco-labelling, EMAS implementation. The Eco-design Programme aims to: improve environmental aspects in products design and promote sustainable consumption and production models in Catalonia; create synergies between research, consumers and production in term of sustainability; develop eco-innovation in Catalan market. The Programme considers several key actions to promote sustainable consumption and production such as institutional campaign, best practices sharing, incentives, recycled and recyclable products. The Eco-design Programme strategies focuses on promoting eco-innovation to designer, firms, universities and research centres, stimulating consumers and the demand to a sustainable market, establishing a responsible governance with a Intra-department Commission.

2.1.6 Andalusian Institute of Technology (IAT)

IAT is a Technology Centre of Engineering and Knowledge Management created as a private non-profit foundation. It is located in Seville and Málaga (Spain) and in Guadalajara (Mexico). Its main fields of activity include: management and sustainable development-energy and environment, technology transfer, management of innovation; technological and organisational training; knowledge management; quality technologies; certification and quality audits. It is the Lead partner of ECO-SCP-MED.

In Andalusia, Law 16/2002 (Law IPPC) and Law 7/2007 (Law GICA) transpose and adapt the IPPC Directive into national and regional legal frameworks, respectively, setting a new environmental administrative intervention model based on the issue of a single environmental permit (Integrated Environmental Authorisation) which brings together all the sector-based environmental permits previously available and on the coordination among the different authorities involved through a single control body (Regional Government for Environment of Andalusia). In Andalusia, the competent bodies for the implementation of environmental rules are the Provincial Delegations of the Department of Environment (Provincial Delegations are in Seville, Huelva, Cádiz, Córdoba, Málaga, Granada, Jaén y Almería).One

of Andalusian best practices is the coordination among the competent bodies in granting the IEA through the criteria and guidelines established by the Central Services of the Department of the Environment. The weakness is the disorientation in the application of the BAT for the prevention and control of environmental aspects of the installations affected by IPPC Law, derived from two aspects: to know the characteristics and performance of the environmental technologies requires training and specific expertise requirements; the information needed for the adoption of cleaner technology and which best suits the needs of the installations, is in the hands of the manufacturers of these technologies, who have difficulty to publish general information, since the data related with the performance and applicability of the technologies depends on specific factors, among them, local conditions, characteristics of installations, etc. Key factors in competitive strategies are also food safety and quality. The agri-food sector is a main pillar of Andalusian economy; it is the first region in Europe according to the number of agri-food firms. The most important sub-sectors in Andalusia, usually considered as agri-food clusters, are: olive oil, horticulture and fruits, olives seasoning, wine, strawberry, meat products, cut flower, tropical agriculture, garlic, oranges, pickling industries, and lard buns and shortbreads. The production of olives oil has a major economic and social importance in Andalusia. The oil mills of Andalusia show a higher technological level than other productive regions, with higher quality is observed mainly in the areas of production and transformation, quality control and certification, training and promotion. According to the Regional Characterization of the olive-oil sector in Andalusia, the main environmental issues faced by oil mills in the region are wastewaters, humid pomace, waste, water and energy consumption. The main environmental issues of mills in Andalusia are associated with the wastewater emission. Currently most mills treat their wastewater in evaporation ponds; most mills send the humid pomace to extraction plants. Therefore, Andalusian mills show a high dependence on the extraction plants.

In Egypt, the key authority responsible for developing the environmental legal and policy framework and for implementing environmental law is the Egyptian Environmental Affairs Agency (EEAA), the executive arm of the Ministry of State for Environmental Affairs, with

the coordination of all relevant stakeholders. Several laws regulates: the protection and the promotion of environment; the prevention and the decrease of degradation and pollution; legal basis for planning industrial areas; fishing, aquatic life and fish farms; the discharge of industrial liquid wastes; the management of natural resources. Technical assistance and supportive projects are provided by the National Cleaner Production Centre (NCPC) of Egypt. Financial facilities and technical assistance for installations can be obtained through the Environmental Compliance Office (ECO) of the Federation of Egyptian Industries (FEI) and the Industrial Modernization Centre that aims to modernize industry with the support of international cooperation agencies and initiatives. The centre of environmental policy is the compliance of industries with environmental regulations. This policy has three main aspects: permitted processes based on EIAs, monitoring of industrial emissions for evaluating the compliance and the effects of the Integrated Pollution Control (IPC) an industrial facilities. Furthermore, Compliance Action Plans (CAPs) are used in cases that straight forward compliance would create social, economic or environmental problems. The cleaner production approach and the Cleaner Production Action Plan[1] focuses on pollution of industries preventing the causes. The goals of the Action Plan are the following: existing industrial installations progress towards cleaner production within a specified timeframe, sharing clean products in order to increase the local markets, available required technical knowledge. Regarding economic incentives, Egypt country uses:

- negative incentives: fines, compensation payment for environmental damages and fees;
- positives incentives: subsidies through the Environmental Protection Fund (EPF), the Carbon Fund and international grants and (soft) loans.

About the Best Available Techniques (BAT), there are no specific Emission Limit values in the permitting procedure and they are not associated to BAT. Different guidelines and report were developed in Egypt in

[1] In 2004, a proposal for "Strategy and Action Plan for Cleaner Production in Egyptian Industry" (Egyptian Environmental Affairs Agency, 2004) was published.

the framework of different international projects. The main problems for implementing and monitoring the success of cleaner production in Egypt is the lack of information, such as inventories of emissions and technologies.

Tunisia has a relatively long history of environmental legislations, from before the independence in 1956. in 1988, a law established a National Agency for Environmental Protection (ANPE), for the environmental protection and the preservation of the quality of life. Relevant laws regulate responsibilities of industrial, agricultural and trade sectors for reducing environmental risks and implementing the EIA. The law n°41 of 1996 is the most detailed regulation about the management, elimination and control of solid wastes at national and local level. Tunisian establishments are classified in to three categories on the basis of the severity of the dangers or disadvantages in their activities. The field of application of the EIA is very broad and essentially covers all categories with significant effects on the environment. It provides procedural aspects such as public consultations. The permitting procedures in Tunisia is based on EIA for controlling and reducing pollution for the aspects regulated in different environmental legislative acts. Regarding BAT, Emission Limit Values (ELV) are established taking into consideration environmental legislative acts which include general ELV not associated to BAT. In order to implementing BAT, different reports were developed in Tunisia during different international projects, but there is no legally binding stipulation at national level. Interventions and national guidance for technical assistance to industries and for building local knowledge in cleaner production and pollution control are limited. Financial facilities are provided by the Depollution Fund (FODEP) managed by ANPE, for adopting clean technologies; there is also the National Fund for Mastering Energy (FNME) managed by ANME for energy efficiency. Some BAT actions can be supported by the established Fund for the Development of Industrial Competitiveness (FODEC).

In Morocco, the National Council of Environment works for protecting and improving the environment. It provides integration of environmental patterns in economic processes and social dimension, in order to achieve a sustainable development. It is chaired by the government authority in charge of environment and includes representatives of government authorities. The national Law 10-95 on water created

the Hydraulic Basin Agencies (ABH, a public institution), in order to realize its goals in the field of water management and manage water resources; it also provides grants and subsidies for the management and conservation of water resources. The national law n°11-2003 related to Environmental Protection and Value aims at enacting rules and general principles of national policy in the filed of environment protection and enhancement, safeguarding living conditions and rights, supporting technical and financial facilities for the environmental protection and management. A national water policy was established for the water management including water quality standards and inventory of water pollution. Waste management was developed with the law n°28-00 and it constitutes the framework for the entire waste management chain. Furthermore, supportive programmes promote a cleaner production. The Industrial Pollution Prevention National Programme (PNPPI) aims to inform the government on the current situation of industrial pollution in the Grand Casablanca region, identifying preventive actions to improve the urban and natural environment. In 2005, Morocco ratified the "Basel Convention" on the Control of Transboundary Movements of hazardous waste, then incorporated in a national law which regulates the export of hazardous waste instead of the prohibition of import it. In Morocco, permitting procedure is based on EIA, in order to regulate pollution prevention and control. In 2003, the national law n°12-30 outlined the EIA for implementing the link between environmental protection and decision making process. In this way, every installations and projects are subjected to EIA. About BAT, ELV are established taking in consideration environmental legislative acts which include general ELV not associated to BAT and there are not legally binding stipulation at national level just like in Tunisia.

2.1.7 Croatian Cleaner Production Centre Institute for Promoting Cleaner Production (Cro CPC)

The centre is a member of the Global Network for Resource Efficient and Cleaner Production founded by UNIDO. It promotes cleaner production and pollution prevention principles in Croatia through training and consultation support, information dissemination and fostering interest parties and general public.

In July 2013, Croatia became EU's 28th member. The CSR is rapidly growing in importance in European markets and at the same time Croatian small and medium enterprises are implementing principles of socially responsibility. The Croatian economic system is small and open and the openness could be the main competitive advantages. It is characterized by agriculture and fisheries, services, transport, industry, energy and construction; Croatia has its own natural energy resources and renewable energies sources. Agricultural areas are mainly arable land and gardens, grasslands, meadows and pastures. The most industrial sectors are manufacturing, petrochemicals, construction and energy sectors. Although the recession, Croatian trade has positive results and foreign sector. From a energy sector viewpoint, electricity, gas and oil represent the most. Croatia has also a widespread motorway infrastructure. In tertiary, tourism and related services are relevant sector of economic activity. The social dimension of sustainability emphasizes the Corporate Social Responsibility (CSR) policies and the need to implement this principle in entrepreneurship, in order to enhance environmental and social performances and then competitiveness. The CSR is placed into social policy and in a wider framework of social cohesion. A suitable social environment helps private sector in their goals. Economic activities do not have also a economic value, but also social and environmental. The CSR should be better defined as a principle of economy and excellence and encouraged by incentives. The private sector should carry out allocations from the budget to social responsibility, with a politics' attention. The relationship between companies and society has moved to rights and responsibilities of business in society and to CSR new approach, in order to reducing negative externalities and addressing wider social and environmental attention in business strategy. In Croatia, CSR is becoming more and relevant given that the increased importance of private sector. The value of CSR has already been recognized by some leading Croatian enterprises that established the National Business Council for Sustainable Development (BCSD). There is the need to analyse the applied practices and to further develop and promote the CSR principles in Croatia. In 2004 UNIDO assisted the Government for developing a conceptual framework for Croatian CSR policy and disseminated a practical methodology for implementing CSR cost efficiently in Croatian SMEs.

The Croatian Government outlined strategic documents in which incorporated CSR: the *Strategic Framework of Development 2006-2013* and the *Strategy of Sustainable Development*. The first document focuses on area with a growth, employment and competitiveness increase and identifies an active role of the private sector in the social aspects such as training, cohesion and regional and environmental development. The second one is mainly focused on CSR measures to achieve stable economic development, equitable distribution of social opportunities and environmental protection[2]. The Strategy integrates measures related to key areas to promote and encourage CSR local policies, in according with EU legislation. It identifies several goals such as achieving competitiveness by increasing efficiency, incorporating social responsibility and transparent business and reducing environment and human risks; promoting the use of environmental label and EMAS scheme adoption; introducing sustainability in public procurement to encourage environmentally friendly behaviour. In this way, business companies contributes to sustainable development by adopting environmental protection and socially responsible behaviour, creates new jobs and implements new technologies.

2.1.8 Centre for Research & Technology Hellas (CERTH)

CERTH is a non-profit research organization directly supervised by the General Secretariat for Research and Technology (GSRT) of the Ministry of Education and Religious, Culture and Sports. It promotes research, innovation and development, and strong partnerships with international and domestic industry or research centres and universities.

The economic specialization of Greece has an enterprises structure characterized by a high share of traditional, family-owned business producing goods and services for local markets. Greece has made significant progresses in reforming its economy. Structural reforms has improved the competitiveness of SMEs. For its position in the middle of three continents, Greece has a geographical advantage represented by ports. However, ports need to further raise their own productivity.

[2] Readiness of the region's private and public sectors for the EU CSR policy framework, commissioned by UNIDO for the Regional CSR Network for small business in CEE/SEE.

The Government initiative to promote a strategy of development and modernisation of the logistics was relevant for the territorial growth. Regional airports, ports and the transportation networks are potential issue for improving the economic system. From an environmental viewpoint, these infrastructures could have a relevant impact and this is the reason for taking care of a sustainable management of economic activities and territory. In fact, Greece has a comparative advantage in several sector associated with green growth – for instance, renewable energy and waste management – that it is not be able to leave it out of consideration. Innovation technologies and industrial development require a sustainable strategy for a long-lasting economic growth. Most of the IAs settled in Greece have recently adopted industrial ecology and eco-industrial networks, they are at an early stage. The most common centralized infrastructure for the Greek IAs is the water waste treatment plant. However, other waste to energy plants exist in some enterprises using biomass for electricity generation or other renewable energy sources. For a sustainable growth, it is essential optimize resources use and maximize the environmental advantages, reducing of CO2 emissions and waste volume. The Prefecture of Thessaloniki consists of 14 Municipalities. A detailed picture of the waste management status in the area has been presented in the scientific literature by E. Papachristou et al. in 2009. The results presented are based on a series of studies conducted in the years 1986-2006 which indicate a dramatic increase in the quantities of waste produced in the area. This increase in per capita generation of solid waste is attributed to changes in the living standards and the consumption patterns, which involve more packaged goods and a general tendency towards throwing away rather than reusing or repairing products. Regarding recycling potential, the main efforts were focused on determining the weight of packaging waste such as paper, plastic, glass and metal. Waste Cooking Oil (WCO) has not attracted attention until quite recently, as regards its recycling potential.

No major initiatives have been taken at a national or regional level as regards its collection, a process that would enable the recording of data about their volume. Having recognised its potential for biofuels production, some initiatives have been taken by the private sector (e.g. supermarkets) for WCO collection. Also, a number of new companies

have been established with the purpose of establishing a network of collection points and handling the logistics of the transport process. Most of these companies operate in the area around Athens and some of them have recently expanded their operational area to include Thessaloniki.

2.1.9 Chamber of Commerce and Industry Nice Côte d'Azur

The Chamber of Commerce and Industry Nice Côte d'Azur is a State public organization in charge of developing economy and fostering competitiveness for its registered companies. It supports, promotes and develop facilities. It directly influences local and regional economic development policies as government bodies, Nice Métropole, City of Nice, Provence Alpes Côte d'Azur Regional Council, public administrations.

Maritimes Alps' industry and Provence Alpes Côte d'Azur region are characterized by the pharmaceutical and electronic sectors. The services sector is much developed and there are many poles of competitiveness and PRIDES (Pôle Régional d'Innovation et de Développement Economique Solidaire) that are able to create innovative projects. The region has developed from a manufacturing sector to a R&D and services industry. The demand of ICT is strongly represented, particularly from the presence of Sophia Antipolis technology pole, but the settlement of different economic activities, also traditional, is important for the regional economy and it leads more advantages instead of a single sector-based industry. The local economic system was mainly agricultural and recently industry has become more diversified and dynamic. The localisation of 26% of population in proximity of the coast highlights the need of suitable areas for managing the space, in order to conciliate the economic and industrial activities with the environment preservation, tourism and social aspects. First industrial activities are electric sector, electronic sector and ICT. The Sophia Antipolis project is the first European technology pole based on the experience of American ones, oriented to value the synergies between research centres and enterprises. It is an excellence pole of ICT and research. Other industrial activities emerged are chemistry, mechanics, agro-food sector and pharmaceutical sector is an added value. Construction sector has

a relevant role in the local economic system, because of stimulate a strong industrial activity on electric installation, electronic and metal production.

The PACA region has an economy related to tourism and tertiary and industry needs a facilitator ecosystem. Industrial and tourist activities coexist and need a permanent evaluation of environmental, natural and landscape risks, air pollutant limits and social conflicts. Other relevant key factor could be the reinforcement of research and enterprises and to facilitate the industrial innovation. One opportunities is the *Grenelle de l'Environnement* that support the green economy and the creation of new jobs and innovation. Green supply chains are strong industrial and natural resources for the PACA region: maritime energy, energy efficiency of buildings, smart mobility and biofuel of 3rd and 4th generation, the smart-grid. They can increase the competitiveness in national and international markets. From a eco-innovation viewpoint, construction and engineering sectors are the most activities with a sustainable innovative management in terms of renewable energy use, buildings energy efficiency, waste and water management.

The Inter-ministerial Committee for the sustainable development (Comité interministériel pour le développement durable (CIDD)) has adopted the National Strategy for sustainable development 2010-2013. It explains a common architecture for public and private sectors for supporting them in their projects on sustainable development and strategic choice and indicators for the evaluation. It aims to develop an efficient and equal economy. It identifies nine strategic challenges:

- sustainable consumption and production;
- society of knowledge;
- governance;
- climate change and energies;
- sustainable transport and mobility;
- sustainable conservation and management of biodiversity and natural resources;
- public health, prevention and risk management;
- demography, immigration and social inclusion;
- international challenges on sustainable development and poverty in the world.

About sustainable consumption and production, the strategic choice promotes the development of environmental information on ecological and social products for influencing behaviours and for stimulating demand-offer; the increase of sustainable products and services; the support to green economy and eco-innovation; the development of a more sustainable agro-food production. The French Government outlined the laws of *Grenelle*. The *Grenelle de l'Environnement* is a series of political meetings organized in France in October 2007, to take long-term decisions on environmental issues and sustainable development, particularly to protect biodiversity, and Regional patterns of ecological coherence, while reducing emissions of greenhouse gases and improving energy efficiency. The environment theme can generate relevant conflict based on long-term decisional processes. In this way emerge the awareness of social acceptance of actions, conflicts passing and common responsibility undertaking with participative processes involved in project and programme planning. This is an example of sustainable management of territory in all the three dimensions of sustainability, social, economic and environmental. It addresses to all sectors: construction, buildings, tertiary, social and private housing, city-planning, transport, research, agriculture, waste and governance.

2.1.10 Agency of Sustainable Mediterranean Cities and Territories (AVITEM)

Avitem is a public consortium settled in Marseilles by its founding members: the French state (DATAR), territorial and local authorities (Région Provence-Alpes-Côte d'Azur, Communauté urbaine Marseille Provence Métropole, Communauté d'agglomération Toulon Provence Méditerranée, Ville de Marseille), the public institution Euroméditerranée and private sector (Institut de la Méditerranée), joined by the Métropole Nice-Côte d'Azur. It has the aim of setting up a device for the share of experiences, expertise, formation and co-operation, in order to promote integrated and exemplary approaches of urban and territorial development between French actors and the countries of the Union for the Mediterranean.

France is an interesting case in the field of energy production. The electricity production is around 75% from nuclear industry. Renewable energy represents a secondary objective for public institutions, be-

cause of there are nuclear energy sources. The authorities have an ambitious environmental policy aims at cutting greenhouse gas (GHG) emissions and dealing air and water pollution, waste management and the conservation of biodiversity. The policy is oriented to a transition towards a low carbon-economy, maintain and modernise the nuclear stock and deal with its waste. In the PACA region the first source of renewable energy is the hydroelectric park; wood energy represents the second one. In the field of solar energy and photovoltaic, the region is one of the first in France for power.

There are also a park with many installations of solar heat energy. In the PACA region is settled a Regional Observatory for Energy that aims to evaluate public policies and the study of regional energy context and perspectives. Its main activities are data collection and processing, study production and publication of balance production, the evaluation of energy consumption and greenhouse gases emissions. Furthermore, in the PACA region is settled the competitiveness pole *CAPÉNERGIES* that aims to develop different supply chains of renewable energy in the region, in Corsica, in Guadeloupe and at the Réunion. It could be the driver for industrial innovation, for the exhaustion of fossil fuel energy and for developing a national energetic supply chain suitable for the different energy sources.

In 2005, the French Parliament has adopted for the first time guidelines for the national energetic policy and it represents the first political commitment in the field of renewable energy development. The national action plan realizes the objectives of the Energy Climat Package developed in the Grenelle 1 and 2 laws. The *Grenelle de l'Environnement* aims to achieve a sustainable development in all economic, social and environmental aspects un French territory, from transports to biodiversity, public health and governance. It is a participative process that involves trade associations, environment protection associations, citizens and experts in the decision making process. It is a legislative set for implementing sustainable aspects. The law *Grenelle 1* provides measures on energy, construction, transport, governance sectors and in the field of environmental risks, The law *Grenelle 2* completes the first one with commitments for implementing the relative measures. The French rate for the energy consumption of renewable energy is of the 23% to 2020. Hydroelectricity is the first renewable energy source

in France, but also wind energy is developing. The French strategy is diversify energy sources.

From a regional viewpoint, territorial authorities have a key role in applying the national law in the field of renewable energy at local level with the support of the Air Climate Energy Regional Scheme and incentives to develop renewable energy supply chains in the region. In the PACA region there is no regional plan for developing renewable energies neither quantities objectives. These quantities objectives the aim of the previous regional strategies, in order to identify a local strategy for the well-proportioned development of territory and different supply chains. In 2006, the Regional Council of PACA adopted the AGIR programme (Action Globale Innovante pour la Région) for energy that aims to develop technical and economic supply chains in the field of renewable energy especially for solar heat, photovoltaic, biomass and wood energy; to increase research and innovation; to promote practices on energy economy and to sensitize local actors. The PACA region and other local actors (ADEME and DRAAF) adopted the Regional Wood Energy Mission; this mission aims to sensitize about wood energy advantages, establish supply chains, provide technical and financial support, strongly implement wood energy in local energetic plans.

2.2 The capitalised Projects

2.2.1 MEID

The MEID - Mediterranean Eco Industrial development - project is co-financed by the Programme Med and the ERDF (European Regional Development Fund). The partners are: ENEA (Italy), Aristotle University of Thessaloniki (Greece), Efxini Poli (Greece), Tecnalia (Spain), Temi Zammit Foundation (Malta), SKEMA Business School (France), ASI Ragusa (Italy), Fundacion Intraeco (Spain), BSC Zenica-Doboj (Bosnia and Herzegovina), Fenice Foundation (Italy).

MEID aims at realizing the Mediterranean Eco Industrial Development model facilitating and enabling planning, building and governing sustainable Industrial Areas (IAs). The MEID project goals are to enhance capacities and decision tools of competent authorities to

integrate environmental friendly solutions into the regional and interregional development strategies related to Industrial Policy. The European and Mediterranean SMEs are the main beneficiaries of MEID, in terms of fostering eco-innovation, competitiveness and transnational cooperation. The results and the activities can be summarized:

- development of a joint industrial policy for local authorities and definition of a Mediterranean Eco Industrial Development model, tested and validated in the pilot areas;
- definition of sustainable rules for construction in Industrial areas and involvement of SMEs in sustainable development to strengthen their competitiveness;
- definition of joint environmental standards, creation of support tools;
- assessment and setting up of a database of Best available technologies and practices for Industrial Areas (IAs):
- realization of training activities for Local Authorities, industrial areas managers, SMEs.

The outputs of the project are a database of Best Practices developed in Industrial MED Areas, a guide for the construction of eco-efficient industrial buildings, and a (MEID) procedural model.

2.2.2 ECOMARK

ECOMARK is a project funded by the MED Programme that aims at applying the green marketing principles, specifically for Eco Industrial Parks (EIP) and generally for Industrial Areas (IA). The partners of the project are: Province of Bologna - Economics Development (PROBO – Italy), Fundación Comunidad Valenciana Región Europea (FCVRE - Spain), Energy Restructuring Agency Ltd (Slovenia), Energy Agency of La Ribera (AER – Spain), Anatoliki S.A. (Greece), Ecuba Ltd. (Italy), STEPRA - Territorial Development for the Province of Ravenna (Italy), Patras Science Park (Greece), Chamber of Commerce and Industry Nice, (Côte d'Azur, France).

The project wants to improve the competitiveness of SMEs and develop a more sustainable community. The Green Marketing Principle (GMP) is based on sustainable (Green) products, processes and

services, and is oriented to the external communication. GMP is an opportunity for innovation, but it has not yet been applied to IAs. The Green Marketing principle can provide innovation related to goods mobility&logistics, energy supply and use, water cycle optimisation, a more sustainable waste management and as a follow up better Information and Communication (IC) networks. The GMP is strongly market oriented. The ECOMARK objectives are:

- planning innovative services for SMEs, business and facility management, environmental and energy analysis, logistical assistance, services for sustainable mobility, etc;
- tuning experimental and strategic marketing plans (GMP) for industrial areas based on a high environmental quality and oriented to promote green marketing at local level and a permanent eco-industrial management;
- testing and monitor the innovative services and the GMP in all the partners' countries.

The project contributes to make the MED area a territory able to meet international competition by ensuring growth and employment for the next generation and supporting territorial cohesion and actively intervene in favour of environmental protection within the framework of sustainable development.

The outputs of the project are: International Benchmark in industrial areas, Innovative service guidelines.

2.2.3 MED-IPPC-NET

MED-IPPC-NET is co-financed by the European Regional Development Fund (ERDF) through the MED Programme for interregional cooperation. The partners of the project are: Andalusian Institute Of Technology (Spain), Arpa Sicily - Environment Protection Regional Agency (Italy), Eurobic Toscana Sud (Italy), Regional Government For Environment Of Andalusia (Spain), Scientific Research Centre Bistra Ptuj (Slovenia), Environment, Water, Town Planning And Housing Department Of Valencian Government (Spain), Environmental Centre Of Kozani (Greece), S. Anna Shool Of Advanced Studies (Italy), Arpa Piemonte (Italy), Eurobic Toscana Sud (Italy).

Its main goal is to identify key aspects in the implementation of the IPPC Directive concerning Integrated Pollution Prevention and Control (96/61/EC) within the Mediterranean area, in order to establish a set of common criteria that should be taken into account by all regions wishing to enhance its implementation. These common criteria are the inputs for the development of a common methodology (guidelines) for implementing the IPPC Directive in the industrial sector. MED-IPPC-NET tackles the implementation of the IPPC Directive by involving authorities and other key players in the first European network exclusively devoted to the IPPC implementation. With the overall goal of promoting sustainable development across the Mediterranean area, the project has created a network of key actors working in the IPPC field, in order to favour the transfer of knowledge, experience and application of methodologies regarding its implementation. The main objectives of the MED-IPPC-NET project can be summarised as follows:

- create a network of key actors in the field of the implementation of the European IPPC Directive, in order to favour the transfer of knowledge, experience and application of methodologies regarding their implementation;
- elaborate and validate a common methodology (guidelines) to support the implementation of IPPC Directive in the MED area;
- foster the implementation of the European IPPC Directive through the execution of a communication and dissemination programme;
- promote a sustainable regional development within the MED area through the protection and enhancement of its natural resources.

The outputs of the project are: MED-IPPC-NET Guidelines on the Best Practices on IPPC Permitting and Following-up Procedure, Interregional Analysis for the implementation of the IPPC Directive.

2.2.4 AGROENVIRONMED

AGRO-ENVIRONMED is an interregional cooperation project, co-financed by the European Regional Development Fund (ERDF) through the MED Programme. The partners of the project are: An-

dalusian Institute Of Technology (Spain), National And Kapodistrian University Of Athens (Greece), Prefecture Of Florina (Greece), Science And Technology Park Of Sicily (Italy), Environment, Water, Town Planning And Housing Department Of Valencian Government (Spain), Regional Government For Environment Of Andalusia (Spain), Eurobic Toscana Sud (Italy), Entrepreneurs Association Of Alentejo-Aeal (Portugal), Scientific Research Centre Bistra Ptuj (Slovenia), Critt Food Alimentary Paca (France), Agenzia Regionale Per La Tecnologia E L'innovazione - Arti (Italy), Expert Group.

Its main objective is to encourage eco-innovation in companies belonging to the Mediterranean Agro-food Sector, particularly SMEs, by the creation of a platform which promotes the transfer of technologies and best environmental management practices. Specific objectives are:

- exchanging of information, already identified experience and knowledge related to Eco-innovation and Environmental Technologies in the MED Agro-food sector;
- improving the environmental performance of agro-food companies in the MED area through the implementation of Environmental Technologies and the optimisation of partner's best environmental practices;
- improving the economic growth of the agro-food sector through the reduction of its impact on the environment and the development of new markets, processes and products, which are more sustainable and environmental friendly.

The outputs of the project are: Catalogue of Best Available Technologies (BAT) and Best Environmental Practices (BEP) in Mediterranean agro-food sector, interregional characterization of Mediterranean agro-food subsectors, and a Methodology for techno environmental assessment for SMES.

2.2.5 ECOTECH SUDOE

Ecotech-Sudoe is a project funded by European Regional Development Fund (ERDF) and it focuses on these issues at the Sudoe European space scale, which includes Spain, Portugal and four South-western regions of France. The partners of the project are: Universitat Autonoma

de Barcelona (Spain), Montpellier Supagro (France), INRA (France), Cemagref (France), Ecole des Mines d'Ales (France), CRITT CATAR (France), Universitat de Girona (Spain), Universidade de Aveiro (Portugal).

Following the Lisbon Strategy, the research project Ecotech Sudoe aims at developing the innovation capabilities in the field of environmental technologies, merging sustainability and competitiveness issues thanks to the toolkit belonging to industrial ecology. Eco-technologies are powerful tools to achieve a rational and efficient use of natural resources, especially energy, water and raw materials, while providing the same level of service but with lower environmental and social impacts. They are based on emerging and promising research areas, likewise:

- social and environmental Life Cycle Analysis (LCA);
- ecodesign;
- industrial and territorial ecology.

The output of the project is the Life Cycle Inventories - Regional Database for Southwest Europe (LCADB).

2.2.6 Low Cost - Zero Waste Municipality

The project "Low Cost - Zero Waste Municipality" is implemented within the programme MED 2007-2013 and is co-financed by the European Regional Development Fund (ERDF). The partnership was made of seven partners: Efxini Poli, Local Authorities' Network for Social, Cultural, Tourist, Environmental and Agricultural Development (Lead partner) (Greece), Ecological Recycling Society (Greece), Aristotle University of Thessaloniki, Laboratory for Heat Transfer and Environmental Engineering (Greece), BRGM - Regional Geological Survey of Provence Alpes Cote-d'Azur (France), Research Centre Bistra Ptuj (Slovenia), Municipality of Ragusa (Italy), UAB Universitat Autonoma de Barcelona, Chemical Engineering Department (Spain).

ZERO WASTE worked on dissemination of know how and data collection so as to facilitate municipalities in the application of methods of waste decrease. The project aims at developing an integrated Zero-waste management system for Municipalities that is based on the principles of re-use, recycling and reduce of waste that ends up in

landfills and dumps. To tackle this challenge, the project concentrated on targeted sensitization actions. In the frame of the ZERO WASTE project the following activities are:

- development of a project communication plan; web site, leaflets, posters, publicity material; press and media campaign; organization of info days with thematic workshops and exhibitions;
- zero waste systems' surveys and analysis to evaluate waste management methods by Municipalities. Study of the operational requirements for the implementation of municipal composting facilities for household biowaste in certain municipalities in Greece, Slovenia, France and Italy will be drafted. Study of the environmental burdens of home composting in certain areas of Catalonia will be executed;
- exchange of experiences: inventories on best and worst practices and transnational SWOT analysis; organization of workshops on waste management methods and common resolution on zero waste application;
- implementation procedure of alternative waste management schemes in Municipalities, composed of practical guidelines for each pilot municipality and pilot application;
- development of Regional Policy tools: creation of an overall handbook on the implementation procedure of alternative waste management schemes and an Interactive Decision Support Tool; Involvement and exchange of know how for Municipal servants, policy makers and other stakeholders;
- pilot application of household composting for a certain number of households in Greece, Slovenia, France and Italy will be launched. In Catalonia, Spain, the environmental impact of home composting through the LCA tool will be determined.

The output of the project is CO2ZW Carbon Footprint tool.

2.2.7 Ecodesign Pilot Project

The Ecodesign Pilot Project, funded by ENISA (Empresa Nacional de Innovación, a public owned company, controlled by Spanish Ministry of Industry, founded in 1982 to finance and participate to innovative

entrepreneurial projects, mainly addressed to SMEs), was developed by a set of Spanish partners: Sostenipra Group, University of Santiago de Compostela, Autonomous University of Barcelona and Inèdit.

The main objective of this project is to verify and show the environmental improvements and innovation induced by the integration of both ecodesign methodology and environmental assessment tools in product development. This project intended to guide companies and public administration throughout ecodesign processes.

In its two years operation time (2011-2012), Ecodesign has involved three different firms per year, called to design together with academic experts one of their products from the raw materials procurement to the required type of maintenance, until the reuse-recover at the end of its usage. The "on field" experiment allowed to see the power of a specific and observant process, in reducing the environmental impacts of production and products, in terms of:

- lower raw materials consumption;
- energy saving;
- waste minimization;
- emissions' reduction.

The output of the project is an Ecodesign web tool for companies and public administration called "edTOOL".

2.2.8 BAT4MED

BAT4MED, "Boosting Best Available Techniques in the Mediterranean Partner Countries", is a complex project, co-financed by the European Commission under the 7th Framework Programme for Research and Technological Development. Four partners come from three EU countries (Spain, Italy and Belgium) and the other four come from the Mediterranean countries (Egypt, Tunisia and Morocco): Instituto Andaluz de Tecnología IAT (Spain), Vlaamse Instelling voor Technologisch Onderzoek N. V. Vito (Belgium), Agencia de Residus de Catalunya ARC-CP/RAC (Spain), Scuola Superiore di Studi Universitari e di Perfezionamento Sant'Anna SSSUP (Italy), Egyptian Environmental Affairs Agency EEAA (Egypt), Centre International des Technologies de l'Environnement de Tunis CITET (Tunisia), Centre Marocain de

Production Propre CMPP (Morocco), Centre for Environment and Development for the Arab Region & Europe CEDARE (Egypt).

The project aims at analysing the potential impact of the introduction of the Integrated Pollution Prevention and Control (IPPC) concept in the Mediterranean region. The overall objective is to ensure a higher level of environmental protection of the region, reducing the negative impacts associated with activities, products and services from key industrial sectors in Mediterranean Partner Countries (MPCs). Regarding this aim, the possibilities of diffusion of the EU IPPC approach to the MPC are assessed and the implementation of best available techniques in the national environmental programmes are promoted and supported. The project want to act as a catalyst for change in the MPC, while supporting the growth and leadership of European industries producing or managing environmental technologies. Overall objective is to ensure a higher level of environmental protection, minimising the negative impacts on human health and environment of key industrial sectors in Mediterranean Partner Countries (MPCs). Specific objectives are:

- to identify, assess and select the Best Available Techniques (BAT) for pollution prevention and control in key industrial sectors with the highest environmental potential benefit;
- to promote and spread the use of BAT through dissemination activities;
- to assess the opportunity and the impact of diffusing the EU Integrated Pollution Prevention and Control approach to Mediterranean partner countries.

The output of the project is Process and Best Available Techniques Databases.

2.2.9 CSR NET

Regional CSR Network Project is funded by UNIDO (United Nations Industrial Development Organisation) and it is on "Establishment of a Regional Network for Corporate Social Responsibility (CSR) Competence for Central, South and Eastern Europe". Apart from Croatia, the governments of six countries (Bulgaria, Bosnia and Herzegovina,

Macedonia, Serbia, Montenegro and Ukraine) have to date sent official letters to UNIDO requesting to become members in the regional CSR Network.

The project aims at enhancing competitiveness of SMEs by improving its environmental and social performance, hence productivity. Geographical scope of project is the Southeast Europe, however, it capitalises the experience and results from Croatia only. This project was conceptualized in view of the strategic importance of CSR to small business in the region, particularly in the context of its possible contribution to speeding up the process of European integration and strengthening market access. The Network aims at making a strong contribution to the improvement of environmental and social conditions in SMEs operating in the Region's industrial sectors, thereby strengthening their competitiveness and market access. Through the provision of awareness raising, training, and advisory services, the Network strives to achieve a better alignment with emerging consumer concerns and enhance relationships with stakeholders, to increase quality and productivity and to realize operational cost savings at enterprise level. The Network will furthermore use as a platform to foster the exchange of information, experiences and best practices in the area of CSR/SMEs and as a catalyst to establish public-private partnerships and to coordinate CSR-related activities for small businesses in the region. The objectives can be summarized in the following way:

- promoting a better understanding of engaging in responsible business practices amongst local stakeholders and the SME community;
- enhancing coordination and collaboration amongst public and private stakeholders to build relevant partnerships and facilitate joint action towards a wider uptake of responsible business by SMEs;
- exchanging information, benchmark relevant experiences, and disseminate best practices in the area of CSR uptake by SMEs;
- raising awareness of practical tools for SMEs to respond to environmental and social challenges and to develop the capacity of local institutions (e.g. business associations, NGOs and consultancies) to provide expert services to support them accordingly;
- laying the foundations for a policy environment that promotes responsible business behaviour among SMEs.

The output of the project is the creation of the Regional Network for CSR Competence.

2.2.10 BIOFUELS 2G

BIOFUELS-2G is a demonstration project funded by the European Union and the LIFE+ Programme. The partners of the project are all from Greece, namely: Centre for Research & Technology Hellas CERTH, Aristotle University of Thessaloniki, Municipality of Thessaloniki, Association of Restaurant Owners of Thessaloniki.

The main aim of the project is to study, develop and implement at the pilot level advanced second generation biofuels production schemes driven by local/regional public private partnerships between a Municipality, a research organization and a university, with a major mobilization of local enterprises which will provide the raw material for the fuel production. The project shaped an integrated approach towards the implementation of a production scheme for second generation biofuels, with increased sustainability (use of renewable energy sources), covering the whole production chain, from the logistics of recovery to the production of the end product. This approach tailored to the characteristics of the region of Thessaloniki, but easily transferable to other major EU urban areas. The pilots prepared the ground for large-scale implementation, which will be operated by Public-Private Partnerships. Overall the project is expected to catalyze collaboration between public and private entities in the field of waste (used oils) management and use for the production of second generation biofuels. by adopting, integrating and implementing new policy instruments, shaping innovative strategies and schemes for production practically demonstrated in an urban environment, and taking advantage of new opportunities and increased maturity at the institutional and entrepreneurial environment.

The project is targeted towards reducing CO2 emissions, thus towards stabilizing the primary cause of climate change. The main premise of this project is to produce biofuels using recycle used cooking oil as main feedstock. Furthermore, this project aims to promote recycling used cooking oil from restaurants and residences instead of disposing them via sewerage. The project's actions are all focus on achieving the following:

- reduction of the wastes volume through the collection of WCO;
- production of useful products, such as friendly to the environment fuels (2nd generation biofuels) from WCO;
- reduction of CO2 emissions by the sustainable biofuels production with the use of solar hydrogen;
- demonstration of environmental benefits of 2nd generation biofuels by using them in a garbage truck operated by the Municipality of Thessaloniki;
- study of public-private partnership scheme to promote the proposed approach, maximize the environmental benefits, and guarantee the continuation of the scheme after the project execution.

The output of the project is the "Exploitation Plan for sustainable and effective second Generation Biofuels application in an urban environment".

2.2.11 ENERMED

ENERMED is a transnational cooperation project implemented in the MED program, that brings together local authorities in Spain (La Pobla de Benissa and the Community of Valencia), French regions (Provence Alpes Côte d'Azur, PACA), Greece (Crete), Italy (Tuscany, Sardinia), and research institutes in the field of energy policies and sustainable development: Laore Sardegna (Italy), E-Zavod (Slovenia), CERTH/ISFTA (Greece), Scuola Superiore Sant'Anna (Italy), CRES (Greece), Institut de la Méditerranée (France).

ENERMED aims to improve and bring coherence to the Mediterranean regional policies on renewable energy. In order to meet the challenges of the globalization, a strong support for the innovation and the competitiveness is required, by pooling the resources and putting into effect common tools. The short-term actions guided in order to strengthen the competitiveness in the long term, with investments in different fields (competences, energy efficiency, clean technologies). The goal of the project is to improve the quality of the regional policies in support of renewable energy (RE), their contribution to energy production, the economic, social, environmental, landscaped impact of the RE projects.

The project studied the regional strategies in the RE sector with purpose to share knowledge of the development potential of the RE in each region partner, highlight the role of the local and regional authorities in the development of RE in the partner countries, identifying the areas where a greater convergence of policies in the field of RE is possible, quest a greater harmonization of the policies of the different partner regions for the RE by creating a common database of information, develop a transnational (common) methodological and strategic framework of development of the RE. More specifically:

- identify key assumptions and major trade-offs that determine regional policies on renewable energy;
- identify scope of action and the institutional levers for better optimization of resources;
- experiment with innovative solutions to optimize regional resources and financial resources available in each partner region;
- develop an operational strategy of transnational Mediterranean regions in reducing CO2 emissions and developing renewable energy.

The outputs of the ENERMED have been a selection methodology for pilot projects, guidelines for implementing and following up pilot projects.

2.2.12 The capitalised projects: a Social Network Analysis

A social network is a structure made up of individuals or organizations connected by one or more specific types of interdependency. The Social Network Analysis (SNA) is a methodology to explore those relationships in terms of network theory consisting of nodes (the individual actors within the networks), and ties (the relationships between the nodes), and represent them through graph-based structures. Since social networks operate on many levels, from families up to the level of nations, there can be many kinds of ties between the nodes, playing a critical role in determining the way problems are solved, organizations are run, and the degree to which individuals succeed in achieving their goals (Barry and Berkowitz, 1998).

Cooperation projects in the EU are aimed at creating and strength-

ening networks and relationships between nodes of different kinds: organizations (public bodies, research centres, firms, NGOs), individuals (civil servants, researchers, citizens), and even projects involving wide or more restraint partnerships.

ECO-SCP-MED works exactly in this direction. It takes 11 previous cooperation projects and, focusing on the objectives and the outcomes of the projects and circulating information, insights, and policy solutions about them, bridges the relationships between partners and strengthens the network of European SCP policies.

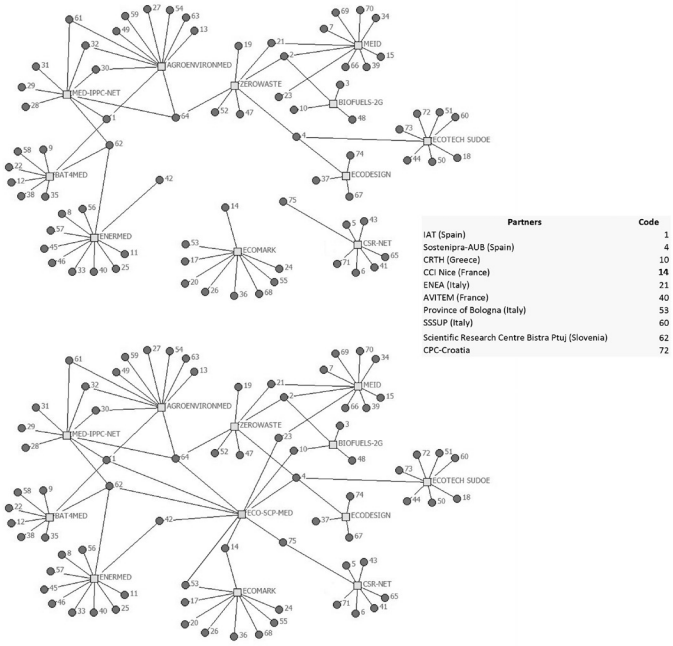


Fig. 2.1: The SNA-graph of EU SCP projects with and without ECO-SCP-MED

Chapter 3

Policies for SCP in Mediterranean area

3.1 National and regional laws

Norms, laws, and regulations are the instruments that feed a legal frame to carry out any kind of initiative and to make consistent different actions made by different subjects. They set the relevant criteria to be fitted by individual and collective behaviours, the modalities to control for the rightful implementation and to sanction infringements.

In this section we deal with laws at the national (Slovenia, Greece, and France) and the regional (Emilia-Romagna) level in the States of the ECO-SCP-MED partnership.

3.1.1 Slovenian national law on green public procurement

The authority responsible of GPP are the Ministry of Environment (MoE), the Ministry of Public Administration (Public Procurement Service), the Ministry of Finance and the Government Office for Development and European Affairs. The Public Procurement Act for contracts in the classical sector and the Public Procurement Act for contracts in the utilities sector regulate contracts in according to EU legislation. In Slovenia, the green public procurement is gradually becoming the implementation of the Regulation on green public procurement. The Regulation lays down mandatory minimum environmental requirements for green public procurement (so called additional environmental requirements) and recommendations for higher

environmental standards (so called additional environmental requirements). It is based on the European Commission's Manual "GPP Training Toolkit". It also sets out six month transitional period where public funds, public agencies, public institutions, public economic institutions, public enterprises and other public entities will have to include environmental requirements only by the criteria for selecting the most advantageous offer. Authorities of the Republic of Slovenia and the Municipality will be obligated to include environmental requirements into technical specifications, between conditions to determine ability and contractual provisions. This is how the practice of public authorities and municipalities in the field of green public procurement could be a help to indirect budget users and other public entities. The Government of the Republic of Slovenia issued the Regulation on green public procurement on 8.12.2011 (Official Journal no. 102/11), which shall apply on 14.3.2012. The Regulation provides for:

- minimum mandatory environmental requirements;
- recommendations for achieving higher environmental standards (so-called additional environmental requirements);
- a way of integrating environmental requirements into public procurement procedures;
- a way of proving that the provider or the goods, services or construction complies with the environmental requirements.

Environmental requirements are included in: description of the object of procurement, technical specifications, conditions to determine the capacity of the provider, criteria for selecting the best offers and contractual terms. Regulation sets the environmental specifications for 11 product and service groups: electricity; food and catering services; office paper and sanitary paper products; electronic office equipment (computers, monitors, printers, scanners, fax machines, copiers); TV; refrigerators, freezers and their combinations, washing machines, dishwashers, air conditioners; buildings, including the design, construction, ordinary and extraordinary maintenance of buildings and installation and mounting of devices and products in the building; furniture; cleaners, cleaning services and laundry services; cars, trucks and bus services and tires. It is designed on the way to make a possibility in the future environmental requirements, as amended regulation can

be tightened or add environmental requirements for new groups of objects procurement.

3.1.2 National law no. 3851/2010 (Greece)

Greek Government adopted in 2010 the law n° 3851/2010 on Renewable Energy Sources (RES) "Accelerating the development of Renewable Energy Sources to deal with climate change and other regulations addressing issues under the authority of the Ministry of Environment, Energy and Climate Change". This law is based on the law No. 3468/2006 Law No. 3468/2006 Generation of Electricity using Renewable Energy Sources and High-Efficiency Cogeneration of Electricity and Heat. The national targets for RES until the end of 2020, based on Directive 2009/28/EC are:

- the contribution of the energy produced from RES to the gross final energy consumption by a share of 20%;
- the contribution of the electrical energy produced by RES to the gross electrical energy consumption to a share of at least 40%;
- the contribution of the energy produced by RES to the final energy consumption for heating and cooling to a share of at least 20%;
- the contribution of the electrical energy produced by RES to the gross electrical energy consumption in transportation to a share of at least 10%.

The national law no. 3851/2010 regulates the license to produce electrical energy from RES (Renewable Energy Sources) or CHP (Cogeneration of Heat and Power of high efficiency), the approval of Environmental Impact Assessment and installation and operation licenses, the incorporation and connection of stations producing electrical energy from RES, the price rationalization of energy produced by RES and CHP stations, the installation of wind farms for the production of electrical energy within the national sea territory, special tax and incentive provisions for household consumers in areas near RES installations, measures for the protection of the climate and the atmosphere, the land use planning for renewable energy installations, the application of RES on buildings, the creation of independent office for RES, the pro-

visions regarding wholesale prices of petroleum products, the schistose slate quarries and the RES plant site issues.

3.1.3 Grenelle laws 1 and 2 (France)

The French Government outlined the laws of *Grenelle*. The *Grenelle de l'Environnement* is a series of political meetings organized in France in October 2007, to take long-term decisions on environmental issues and sustainable development, particularly to protect biodiversity, and Regional patterns of ecological coherence, while reducing emissions of greenhouse gases and improving energy efficiency. The environment issue can generate relevant conflict based on long-term decisional processes. In this way emerge the awareness of social acceptance of actions, conflicts and common responsibility undertaking with participative processes involved in project and programme planning. This is an example of sustainable management of territory in all the three dimensions of sustainability (social, economic and environmental). It addresses to all sectors: construction, buildings, tertiary, social and private housing, city-planning, transport, research, agriculture, waste and governance.

The law *Grenelle 1*, adopted in 2009, proposes measures on energy, construction, transport, biodiversity and natural environments, governance sectors in the field of environmental risks. *Grenelle 2*, adopted in the same 2009, completes the first one with commitments for implementing the relative measures. The measures can be summarized as follows.

- Construction and private-housing: apply the legislation "low energy buildings" (less than 50 kWh/m2 primary energy) for all new construction; reduce energy consumption in old buildings 38% by 2020; set an ambitious program of thermal renovation: 400 000 full year from 2013 renovations, and with reduced timelines for public buildings; renovated housing in areas under the national urban renewal program; promote agreements with banks and industry insurance to fund the development of investment energy saving;
- city-planning: harmonize guidance documents and planning, including established throughout agglomeration; fight against the decline of agricultural and natural surfaces and the urban sprawl;

establish a plan to restore nature in the city, with a view of biodiversity conservation and urban adaptation climate change;

- Transport: reduce emissions of greenhouse gases 20% by 2020 and reduce dependence of the hydrocarbon sector;
- Energy: adapt standards for energy consumption of products; generalized energy labelling; gradually remove the products, processes, equipment and vehicles most consumers; support withdrawal at community level, starting in 2010, the incandescent bulbs; strengthen the certificates for energy savings; support networks of heat supplied to more than 50% by new renewable energy;
- Biodiversity: develop, by 2012, a green frame and a blue frame linking large sets of territory controlled by region with local communities and stakeholders in a coherent framework defined by the State; strengthen national biodiversity strategy; establish marine protected areas covering 10% of waters under the sovereignty of the state; implement within five years of conservation plans or 131 restoration to protect plant and animal species critically endangered; establish a new governance for integrated management the sea and coastline; mention for the first time in the law of regional conservation natural areas;
- Water: double the amount of water masses in good condition by 2015; ban the use of phosphates from 2012; define, by 2012, action plans to protect catchments 500 the most threatened drinking water, incorporating the issue of pesticides; give priority to organic farming and few users inputs within the perimeters of drinking water; develop recovery and reuse of rainwater and wastewater in compliance with the health requirements; set targets for reducing the presence of substances priority hazardous to aquatic environments;
- Agriculture: develop organic agriculture (target: 6% of agricultural area useful in organic farming in 2012 and 20% in 2020); establish an environmental certification of farms agricultural (50% of farms in 2012); introduce integrated environmental requirements goal;
- Research: the national efforts are addressed in renewable sources; energy storage; fuel cells; biofuels second and third generation; biodiversity; the analysis of behavioural and economic determinants

of environmental protection. These researches are addressed to upgrade, by the end of 2012, spending on research clean technologies and the prevention of environmental damage, with spending on nuclear research; support eco-friendly innovations;

- Risks, health and environment: preparing the second national health and environment plan for better know, manage and reduce the use of harmful substances; develop a plan to reduce the particles in outside air; implement, by 1st January 2012, a health record of tracing its employee exposure to hazardous substances during his professional life also provide an experiment of this device for the most concern, in consultation with the relevant social partners.
- Waste: 7% reduction of household waste production per capita annually within five years; increase recycling organic matter and 35% in 2012 and 45% in 2015 of household and similar waste, 75% by 2012 for household packaging waste and non-hazardous waste companies; limit the quantities incinerated or stored: decrease of 15% by 2012;
- Exemplary State: ensure that, by 2009, vehicles purchased by the state emit less than 130 g CO2/km but need service; use certified wood from managed forests in a sustainable way starting in 2010; significant reduction of paper consumption of administrations and recycling paper; use of biological products for the supply of catering services: 15% of orders in 2010 and 20% in 2012; develop the use of information technology and communication and videoconferencing facilities;
- Governance and information: create a system of rights and duties for associations and foundations regarding the environment protection (criteria set by the Council of State); create an environmental portal allowing access for all to information held by public authorities and , in some cases, participate in the development of public decisions regarding the environment; inform consumers about the environmental and social characteristics of product / packaging , to have comprehensive and objective information; consolidate the essential role of local authorities in environment and sustainable development and associate local communities at the national consultative forum for dialoguing about it.

3.1.4 Regional law no. 28/2009 on public consumption and GPP (Emilia-Romagna, Italy)

Emilia Romagna Region, adopted a regional Action Plan for sustainability of public consumption with the Regional Law 28/2009. It supports regional GPP organizing technical tables and training meetings to support both Local Authorities to define green procedures and enterprises in the field of eco-innovation and GPP, in order to develop a local market based on green products. The Plan supports also the development of toolkits, e-learning courses and information points per GPP activities. Local authorities adopt a three year plan on GPP. The Region instituted the regional agency for centralized procurements Intercent-er (see Section 3.3.5), for addressing public procurement toward environmental responsibility. Measures for the integration of the requirements of environmental sustainability in the procurement of goods and services are based on reduction of the use of natural resources, replacement of non-renewable energy with renewable sources, reduction of waste production, reduction of pollutant emissions, reduction of environmental risks. Furthermore, do exist criteria regarding the implementation techniques for recycling and reuse of waste. In the purchasing procedures, the Region applies the minimum environmental criteria in the application of the GPP NAP. The main categories of products and services are stationery, computer equipment, foodstuffs, furniture, vehicles, cleaning, energy.

3.1.5 Regional law no. 7/2007 for integrated management on environmental quality (Andalusia, Spain)

The main environmental act in Andalusia is the Law 7/2007, dated 9 July, for Integrated Management for Environmental Quality which gives the legal framework to the General Directorate for Prevention and Environmental Quality of the Regional Government of Andalusia to develop its functions. The law identifies three instruments: the Integrated Environmental Authorisation (AAI), the Unified Environmental Authorisation (AAU), the Environmental Qualification (CA) and control authorizations. This normative regulates all aspects of environmental management, environmental impact for civil engineering, acoustic pollution, wastewater disposal and other matters. The law includes, as an outstanding novelty, the first Andalusian regulation on light pollution.

3.2 Plans, programmes and strategies

With plans, programmes and strategies we define general frameworks that, usually descending from laws, set objectives, instruments, and expected outcomes of a policy. They are important tools to enforce laws and, more generally, to define the direction to be taken about any issue the public administration is involved in.

In this Section we illustrate both national (Italy, Croatia, Slovenia) and regional (Tuscany, Emilia-Romagna, Catalonia, Alpes-Cote d'Azur) plans, programmes and strategies mentioned by ECO-SCP-MED partners as a relevant framework for SCP policies in their areas.

3.2.1 National Action Plan for GPP (Italy)

The Ministry of the Environment and the Protection of Natural Resources outlined the Inter-ministerial decree n°135/2008 (11th April 2008) that establish an Action plan for the environmental sustainability of consumption in the public administration sector (National Action Plan on Green Public Procurement - NAP GPP). It is a normative instrument for integrating environmental criteria in the procurement processes of public authorities and for influencing their behaviour in terms of sustainability. It aims at disseminating GPP knowledge and application in Government and public authorities, in order to reduce volume spending and environmental impact of products, goods and services. The priority sectors of intervention are split in 11 categories: furnishing, building, waste management, urban and country services, energy services, electronics, textile and footwear, stationery, catering, building management services, transport. Strategic issues for Italian GPP strategy are the following:

- efficiency and savings in the use of resources, especially energy, thus reducing CO2 emissions;
- reduction in the use of hazardous substances;
- quantitative reduction in waste products.

The dissemination of GPP depends on other support actions such as communications actions, training measures and monitoring.

3.2.2 National Sustainable Development Strategy (Croatia)

The Croatian Parliament adopted the Strategy of Sustainable Development in 2009. The Strategy includes an analysis of the existing economic, social and environmental situation and establishes guidelines for long term actions.

The Strategy provides fundamental principles and criteria for determining the objectives and priorities in considering the long term transition towards sustainable development in the country.

The Strategy for Sustainable Development of the Republic of Croatia, while respecting the assumed international obligations, is focused on long-term action in eight key areas: encouraging population growth in the Republic of Croatia; environment and natural resources; promoting sustainable production and consumption; Ensuring social and territorial Cohesion and justice; ensuring energy independence and increasing time the efficiency of energy use; strengthening public health; interconnectedness of the Republic of Croatia; protection of the Adriatic Sea, coastal area and islands. In those areas, it is necessary to redirect the existing processes towards them to more sustainable behaviour. These are the eight key challenges of sustainable development that also serves as the basis for strategic directions of the development of the Republic of Croatia.

Overall objectives are linked to these challenges and the Strategy provides activities and measures to achieve the objectives such as: increase the birth-rate and sustaining the spatial and gender balance for increasing the proportion of younger population; prevent the loss of terrestrial biodiversity; adopt a regulation to establish the landscape management plan for the Republic of Croatia in spatial planning and development and in planning and using natural resources, provide for conservation of important and characteristic landscape features; promote restoration initiatives for agricultural and degraded forest lands; encourage cultivation on the existing potentially arable agricultural lands while implementing required melioration measures in order to achieve sustainable agriculture and increased production of necessary products; reduce the loss of marine and coastal biodiversity and increase the number of protected areas; expand protected areas to ensure sufficient natural resources for the use of local communities with a long-term objective to protect 15-20% of the surface area of the Republic of Croatia; preserve water quality and

prevent pollution, including wastewater treatment, improve the national level of coverage by the public water supply (increase the supply rate to 85-90%), improve the level of wastewater treatment and sewage network availability, increase the quality of the flood protection system, take account of renewability of resources and increase protection of sensitive aquatic and water-dependent ecosystems as well as marine and coastal ecosystems; laborate all elements and implement a regulatory framework which encourages market supply of sustainable products and services in the market; by 2013 increase the share of areas used for ecological production (including pastures and forests) to at least 5% and support the development of the market for ecological products; education for sustainable development as a prerequisite of successful implementation of the Strategy stands out as a particular challenge.

The Strategy will be implemented through Action Plans which will be prepared for each of the challenges. The national Sustainable Development Strategy is focused also on CSR measures to achieve stable economic development, equitable distribution of social opportunities and environmental protection. The Strategy integrates measures related to key areas to promote and encourage CSR local policies, in according with EU legislation. It identifies several goals such as achieving competitiveness by increasing efficiency, incorporating social responsibility and transparent business and reducing environment and human risks; promoting the use of environmental label and EMAS scheme adoption; introducing sustainability in public procurement to encourage environmentally friendly behaviour. In this way, business companies contributes to sustainable development by adopting environmental protection and socially responsible behaviour, creates new jobs and implements new technologies.

3.2.3 National Action Plan for SCP 2012-2016

The recently adopted national Sustainable Development Strategy (2009) includes a thematic chapter exclusively dealing with SCP. It's overall objective is to achieve a balanced and stable economic growth which will have less impact on further environmental degradation and waste generation than at present. Some of these measures already enjoy strong support under existing sector policies, while others will be fostered by a SCP Action Plan which is currently in its conceptual phase.

In the fields of energy and SCP, Croatia developed the Energy Efficiency Programme for Republic of Croatia (EEMP) 2008-2016 and the National Energy Efficiency Action Plan (NEEAP) 2010. Croatian Government integrated the Energy Performance of Buildings Directive 2002/91/EC (EPBD) of the European Union with the Action Plan for EPBD implementation. In the field of transport, Croatian government developed a National Programme on Promoting Production and Use of Biofuels in Transport and the related National Action Plan. It is also important the waste management of different types of waste for implementing SCP policies, from their generation to final disposal. The Republic of Croatia regulated an integrated waste system by the Waste Management Plan of the Republic of Croatia 2007-2015 and by the Waste Management Strategy (2005). In Croatia there exists a strong nature-protection regulatory framework - the Nature Protection Act and the Environmental Protection Act - which balances conservation and protection of ecosystems, soils, biological and land diversity on the one hand, whilst providing an enabling environment for the sustainable use of natural resources on the other.

3.2.4 Slovenian National Action Plan for Energy Efficiency for the period 2008 – 2016

The Slovenian government adopted the National Energy Efficiency Action Plan for 2008–2016 (NEEAP) in 2008, which covered the period from 2008 to 2010. The draft version of the second NEEAP covers the period from 2011 to 2013. The last NEEAP has to be drawn up in 2014 for the rest period to 2016. The targets of the NEEAP is to achieve cumulative savings of at least 9% of the average final energy consumption under ES Directive (Non ETS) in the 2008–2016 period, or at least 4 232 GWh (including the energy savings resulting from the implementation of earlier activities in the 1995–2007 periods). Savings are to be achieved by means of various sectoral-specific, horizontal and multisectoral measures in all sectors (house-holds, tertiary sector, industry and transport). The first NEEAP 1 for Slovenia has proposed 29 sectoral, multi-sectoral and horizontal instruments to achieve the energy efficiency target. A large number of barriers will be removed by these instruments; these barriers are of an institutional, legislative, ad-

ministrative, economic, financial, personnel nature, and also relate to awareness and information provision, and so on. The second NEEAP 2 for Slovenia has proposed different sets of measures in all sec-tors: 5 measures for households, 5 measures for industry, 3 measures for tertiary, 4 measures for transport, 4 measures for public sector and 3 multi-sectoral measures. Also there are 4 measures supporting all sectors. The expected total energy savings due to the implementation of the measures referred to NEEAP 2 in 2016 are estimated at 7246 GWh of which 1,557 GWh in households, 717 GWh in tertiary (of which 557 GWh in public sectors), 1,634 GWh in industry, 1,717 GWh in transport and 1,641 GWh in multisector.

3.2.5 National Consumer Programme 2006-2010 (Slovenia)

The National Programme of Consumer Protection (2006–2010) is directly concerned with chemicals safety. It was adopted in 2005 and it is inter-sectoral, and chemical safety in relation to consumer protection is addressed in 2 sections of the programme. One deals with plant protection chemicals, including biocides, and is concerned with implementation of measure to protect the public, and provides targeted outreach education of consumers. The other section deals with the protection of the consumer from exposure to chemicals in products through promoting the availability and understanding of information about chemicals in consumer products.

3.2.6 Environment Protection Act (Slovenia)

The Republic of Slovenia adopted the Environment Protection Act. This act regulates the protection of the environment against burdens, which is a basic condition for sustainable development, it lays down basic environmental protection principles, environmental protection measures, environmental monitoring and environmental information, economic and financial instruments for environmental protection and public services for environmental protection and other issues related thereto. The Environment Protection Act disciplines the national objectives:

- prevention and reduction of environmental burdens;
- conservation and improvement of the environment quality;

- sustainable use of natural resources;
- use energy reduction and increase of renewable energy sources use;
- remedy to consequences of environmental burdens, improvement of the disrupted natural equilibrium and recover of its regeneration capacity;
- increase of material efficiency for production and consumption, hazardous substances abandonment and replacement.

To achieve the overall objectives, several action shall be promoted: the production and consumption patterns contributing to the reduction of environmental burdens, the development and use of technologies preventing, eliminating or reducing environmental burdens, and pollution charges and the use of natural resources shall be paid. More precisely, the Act regulates in their articles the limit values and rules of conduct, the ensuring environmental quality standards, the measures in case of environmental accident, the Eco-label and system for environmental management of organisations, the Eco management and audit scheme of organizations (EMAS), the programmes and plans concerning environmental protection (such as national environmental action programme, EIA, the environmental protection permit and the economic and financial environmental protection instruments.

3.2.7 Energy and Environment Plan of Tuscany Region

The new Regional Energy and Environmental Plan (PAER is the Italian acronym) is in the implementation of the Regional Programme Development 2012-2015. It is the tool for environmental planning and regional energy. Issues related to air quality and waste are excluded from PAER, subjected to the appropriate Regional Plans. The PAER aims at supporting the transition towards a low-carbon economy and contrasting climate changes through the dissemination of the green economy and promoting adaptation to climate change, prevention and risk management. Related to green economy, the plan identifies four areas of intervention: soil conservation, water, coastal safeguard and seismic risk. The long-term strategies of PAER are as follows:

- extraordinary Strategic Intervention Program of the Water Resource: reduce the scarcity of water resources, due to long peri-

ods of drought in the spring and summer seasons, through measures for the diversification of supply sources and optimizing the use of the resource;

- defence of the soil and climate change in Tuscany: reduce the risk hydraulic and hydro-geological , due to heavy rains and water bombs in the autumn and winter months, through interventions soil conservation;
- strategic interventions for the coastal defence: achieving and maintaining a dynamic balance through consolidation of the littoral and erosion reduction;
- multi-annual Programme for seismic safety: Put in the seismic safety of public housing in the areas of greater risk.

The structure of the PAER can be summarized in the following figure:

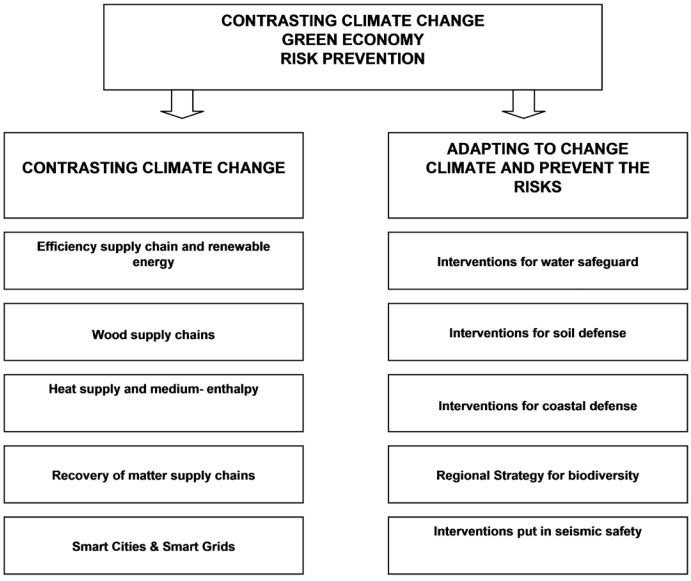


Fig. 3.1: The structure of PAER

3.2.8 Energy Plan of Emilia-Romagna Region

Emilia-Romagna Region adopted the first Energy Plan with the regional law n°26 in 2004 and a fundamental tool consisting of the three-year plans for implementation. These are the key points of the Regional Energy Plan of the Emilia-Romagna: efficient use of energy, energy savings, renewable energy sources development, upgrading the electrical system, new technologies in the industry, energy certification of buildings, development of energy management services. The plan sets the targets for energy savings in different sectors (residential sector accounts for one-third, the transport sector to 40%, industry 25%) and provided a first regional allocation of 90 million euro in three years (2008-2010).

Intervention tools for the implementation of the Energy Plan concerned primarily the enactment of new legislation on the energy performance of buildings, with more stringent standards than in the past as well as a system of incentives for the acceleration of the rationalization energy, to promote advanced services, training and information. The second implementation plan for 2011-2013 was approved by the Resolution of the Legislative Assembly no. 50 of 26 July 2011. The final document is the result of a participative process based on shared objectives and tools that will take the region in the period 2011-2013 in the field of energy.

Axis	Actions
Regional research and training	• Support for research and innovation in enterprises • Support for the research laboratories of High Technology Networks • Support for innovative research projects by organizations, businesses, associations • Training activities in the field of renewable energy and the green economy
Green economy and energy qualification of productive system	• Support for projects to improve energy efficiency of businesses • Support for the development of new businesses in the green economy • Energy and environmental qualification of the production areas • Development of financing facilities and guarantees for the green economy • Management of the interventions co-promoted at national level

Axis	Actions
Sector agricultural	• Support for the production of agro-energy • Support for projects qualifying energy of farms
Construction, urban and territorial qualification	• Qualifying energy efficiency in public and heritage • Upgrading the energy efficiency of urban and regional • Energy qualification of the private • Development of procedures for the certification of buildings
Sustainable mobility	• Improving the attractiveness of local public transport • Interventions for modal interchange and pedestrian mobility • Integrated planning and database indicators of mobility and transport • Support measures for the dissemination of low-emission vehicles • Support for measures aimed at the promotion of rail transport of goods and people
Regulation of the sector	• Simplification and coordination of activities for the regulation of sector • Regulation on the authorization procedures for production facilities • Rules governing the location of the plants powered by renewable sources • Regulation on the exploitation of geothermal resources • Revision of legislation on the control/inspection of heating/air conditioning installations • Upgrading of Regional Law 26/2004
Local programming, information and communication	• Development of energy programming/promotion at the local level • Development of Regional Energy Desk • Relationships with schools and universities • Communication and promotion
technical assistance and partnership	• Plan Management • Development of Regional Energy Information System • Development of protocols and agreements with third parties • Monitoring and evaluation of interventions

Tab. 3.1: Energy Plan scheme

In the second implementation Plan, eight axis, 35 actions and the necessary financial resources have been identified. In particular axis identifies the key strategic actions that the Region intends to put in place policies for aggregating large areas and for potentially affected actors. The actions identify in the Plan have a relevant importance such as support for the research laboratories of High Technology Networks, support for innovative research projects promoted by organizations, businesses, associations, training activities in the field of renewable energy and the green economy, development of financing facilities and guarantees for the green economy, qualifying energy efficiency in public and heritage, rules governing the location of the plants powered by renewable sources.

3.2.9 Action Plan for sustainability of consumption of Emilia_Romagna Region

This Action Plan is made in implementation of law no. 28/2009 "Introduction to environmental sustainability criteria in the procurement of the Public Administration". The Action Plan for the environmental sustainability of public consumption in Emilia-Romagna adopted for investing in an integrated sustainable consumption policy. The Plan provides a definition of GPP, the European regulatory framework and policy documents related to the national rules on public contracts and environmental considerations; minimum national environmental policies, the analysis of regional procurement and the role of regional INTERCENT-ER; the introduction of GPP in the regional system and the management plan and monitoring. Primary objective of the Action Plan for the environmental sustainability of public consumption in the Emilia-Romagna region is to attain a level of 30% green public procurement by 2015 through the adoption of several tools. At this Plan is also entrusted with the task of acting transversely and affect on all the regional actions. The region through an integrated set of interventions is to promote environmental quality as an important precondition for sustainable economic, social and agricultural land. Such interventions should therefore be planned in line with the Regional Landscape Plan, the Rural Development Plan, and then with actions to support agriculture, as well as with all projects integrated local development. The

regional strategy for the introduction of GPP in practice the regional administration and regional organizations and agencies, as well as other public bodies has been translated into the following operational objectives:

- enhance internal skills: training and information for employees;
- increase the proportion of purchases of goods and services with reduced environmental impact;
- promote the introduction of ecological criteria in the procurement of works;
- promote savings, the reduction in the intensity and energy efficiency;
- develop the use of renewable energy sources;
- promote responsible drinking within the regional offices and other public bodies;
- include environmental criteria in the legislation and regional planning.

3.2.10 Catalonian Ecodesign Strategy

The Ministry of Territory and Sustainability set up the Catalan Ecodesign Programme (Ecodiscat$_{2012\text{-}2015}$) realized by a public participation to establish the added value of eco-design in local economy. It focuses on certification systems, eco-labelling, EMAS implementation.

The Eco-design Programme aims to: improve environmental aspects in products design and promote sustainable consumption and production models in Catalonia; create synergies between research, consumers and production in term of sustainability; develop eco-innovation in Catalan market. The Programme considers several key actions to promote sustainable consumption and production such as institutional campaign, best practices sharing, incentives, recycled and recyclable products.

The Eco-design Programme strategies focuses on promoting eco-innovation to designer, firms, universities and research centres, stimulating consumers and the demand to a sustainable market, establishing a responsible governance with a Intra-department Commission. For other information on Ecodiscat$_{2012\text{-}2015}$ see Sections 3.3.3

3.2.11 Territorial Climate and Energy Plan (PCET) (Alpes-Cote d'Azur)

The territorial Climate and Energy Plan (PCET) is a framework for engagement planning. Appeared in the 2004 national climate plan as a tool available to local authorities, PCETs should be made mandatory for communities with more than 50,000 inhabitants, by law "Grenelle 2", article 75. The two objectives of PCET are to participate to mitigate climate change by limiting emissions of greenhouse gases in the community and its territory and to adapt the territory to climate change. The process of a PCET development is:

- identify the main gas emission sources of greenhouse (GHG) emissions and vulnerabilities territory to climate change;
- identify ways to reduce emissions and vulnerabilities through all sectoral policies (urban planning, housing, transport, development economic, ...);
- mobilize territorial partners to develop and implement an action plan to reduce emissions and adapt to foreseeable climate change impacts.

3.3 Networks and systemic projects

A network is a bulk of cores elements linked together by some kind of relation. Born in the scientific world (physics, artificial intelligence), the notion of network is progressively acquiring relevance in many other disciplines belonging to social studies. Networks are important for their ability in make information flow, inducing cooperation among partners, fostering the adoption of best practices and the development of innovations. For these reasons, they are a new frontier for policies implementation.

3.3.1 Cartesio Network

Cartesio Network, born in 2007, is promoted by the Italian regional authorities of Emilia Romagna, Lazio, Liguria, Lombardy, Sardinia and Tuscany. It is open to public and private actors.

The network is aimed to reach and diffuse collective solutions in cluster sustainable management. Clusters are both industrial and urban

areas and collective sustainable solutions are directed to improve existing synergies. Cartesio topics are: Emas cluster approach, Eco-industrial parks, product supply chain policies and governance.

Cartesio cooperate with Italian Environment Ministry for the promotion of sustainabilty tools in the clusters.

The network is managed through:

- a Steering Committee; composed by Regions representatives, that approves an yearly activity programme and is aimed to plan and direct the network activities.
- a Technical Committee; composed by experts who support the Steering Committee to pursue the network objectives and to implement the yearly programme activities.

Technical Committee is coordinated by Scuola Superiore Sant'Anna (University of Pisa) and ERVET (Emilia Romagna Development Agency). Cartesio is composed by more then 250 members, from 17 italian regions. They are: public authorities, companies and industry associations, universities and research institutes, certification bodies.

The most interesting studies carried out by Cartesio Network concerns the EEPAs and the ecodistricts. Cartesio network's proposals and studies are developed also through european projects, like:

- ECCELSA, *Environmental Compliance based on Cluster Experiences and Local Sme-oriented Approaches*. The project is aimed to support small and medium enterprises to work in respect of environmental legal compliance and improving eco-performances of their processes and products. The project is co-financed by the European Commission by "Life Plus" fund and supported by Regional Administrations of Emilia Romagna, Lazio, Liguria, Lombardia e Toscana.
- IMAGE, *Innovation for a MAde Green IN Europe.* The project's objectives are relevant to diffuse the environmental innovation for the organizations operating in various phases of the fashion supply chain. The project foresees the development and the applications of an innovative method the "EMAS Network Approach", to contribute consolidating the implementation of the different steps foreseen by the EMAS Regulation to the cluster, so to create a common basis for all the individual SMEs inter-

ested in using collective resources and a cooperative approach to achieve an individual EMAS registration.

- PROMISE, *PROduct Main Impacts Sustainability through Eco-communication.* The project aims to develop communication strategies to reduce the environmental impacts of products. The project aims to increase awareness in the actors able to influence the lifecycle (procurement, production, selling and use) of products. More specifically, the project is aimed to face environmental impacts generated by household products (detergents and cleaning products, tissue, toilet, etc.) and agri food products. Therefore, the identified target groups are: local bodies, consumers, retailers and producers.
- ETA-BETA, *Environmental Technologies Adopted by small Businesses operating in Entrepreneurial Territorial Areas.* The project is aimed to support the implementation of Environmental Technologies Action Plan (ETAP) in industrial parks. The project is co-financed by the European Commission by "Life Plus" fund.
- BRAVE**,** *Better Regulation Aimed at Valorising EMAS.* The BRAVE project aims at connecting the approach of Better Regulation policies with the new EMAS Regulation and ECAP priorities, emphasizing the commitment of companies registered EMAS by granting them administrative and economic benefits.
- PREFER, *PRoduct Environmental Footprint Enhanced by Regions*. The project is aimed to test the PEF (Product Environmental Footprint) methodology to 8 italian clusters. The LCA based methodology, proposed by the European Commission, will be applied to following sectors: paper, fashion, textile, wine, agri-food, horticulture, tomato, footwear. The project is co-financed by the European Commission by "Life Plus" fund.

3.3.2 The Covenant of Mayors

After the adoption, in 2008, of the EU Climate and Energy Package, the European Commission launched the Covenant of Mayors to endorse and support the efforts deployed by local authorities in the implementation of sustainable energy policies. The Covenant of Mayors is the mainstream European movement involving local and regional au-

thorities, voluntarily committing to increasing energy efficiency and use of renewable energy sources on their territories. By their commitment, Covenant signatories aim to meet and exceed the European Union 20% CO_2 reduction objective by 2020. Indeed, local governments play a crucial role in mitigating the effects of climate change, all the more so when considering that 80% of energy consumption and CO_2 emissions is associated with urban activity. At April 2014, Covenant signatories are 5,560, representative of more than 183 milions of hinabitants.

For its unique characteristics - being the only movement of its kind mobilising local and regional actors around the fulfilment of EU objectives - the Covenant of Mayors has been portrayed by European institutions as an exceptional model of multi-level governance.

In order to translate their political commitment into concrete practice, Covenant signatories notably undertake to prepare a Baseline Emission Inventory and submit, within the year following their signature, a Sustainable Energy Action Plan outlining the key actions they plan to undertake.

Beyond energy savings, the results of signatories' actions are manifold: creation of skilled and stable jobs, not subject to delocalisation; healthier environment and quality of life; enhanced economic competitiveness and greater energy independence. These actions are examples for others to follow, notably through referring to the "Benchmarks of Excellence", a database of best practices submitted by Covenant signatories. The Catalogue of Sustainable Energy Action Plans is another source of inspiration, as it shows at a glance the ambitious objectives set by other signatories and the key measures they have identified to reach them.

About the structure of the Covenant of Mayors, it's important to outline the network is rich and multilevel, with different tasks for every subject involved. So we have Covenant Coordinators - including provinces, regions and national authorities – that provide strategic guidance, financial and technical support to signatories. Network of local authorities, known as Covenant Supporters, commit to maximize the impact of the initiative through promotional activities, liaison with their members and experience-sharing platforms. Promotional, technical and administrative assistance is provided on a daily basis to Covenant signatories, Covenant Coordinators and Covenant Supporters

by the Covenant of Mayors Office (CoMO), managed by a consortium of networks representing local and regional authorities. In cooperation with the CoMO, the Joint Research Centre of the European Commission assists signatories with scientific and technical questions, mostly related to emission inventories and action plans. Signatories are helped through the process thanks to a number of tools and methodologies which have been developed in coordination with the CoMO. Alongside the European Commission, the Covenant benefits from full institutional support, including from the Committee of the Regions, which supported the initiative since its inception; the European Parliament, where the two first signing ceremonies were held; and the European Investment Bank, which assists local authorities in unlocking their investment potentials.

3.3.3 From Ecodiscat$_{2012\text{-}2015}$ to the Interdepartmental commission on ecodesign (Catalonia)

The Interdepartemental Commission on Ecodesign is an internal comission of the Catalonian Government which aims to expand the current Ecodesign strategy, established by the Ministry of Planning and Sustainability, to a Government strategy.

Ecodesign means the integration of the environmental aspects in the product design with the objective to ameliorate its life cycle ecological performance (Directive 2005/32/CE). The rationale is straightforward: the performance of a product (the same for a service) from the cradle of raw materials to make it, to the grave of its transformation in waste to be disposed (passing through the phases of transportation, manifacturing, distribuition and use) is strongly influenced by the way it has been designed. For this reason, it is very important to take into account all the relevant environmental aspects (eco-design) or environmental and social aspects (sustainable design) in that original phase.

The Catalonian Department for Territory and Sustainability decided few years ago to plan a department strategy for eco-design (Ecodiscat$_{2012\text{-}2015}$) to support the assimilation of ecological design approach in the productive process, to give an impulse to the transfer of knowledge about it in universities and research centres, and as a strategy to increase the request for sustainable goods and services.

Albeit born in a single Department of the Generalitat, a so ambitious strategy needed the widest involvement of institutions and participation of civil society partners. To accomplish with this intention, Ecodistat has been debated with 108 stakeholders and 70 companies, associations, and institutions in 42 challenging meetings. The outcome is given by three axis, seven strategic lines and 42 projects aimed at making eco-design the standard planning modality for next decades.

Axis 1: **Stimulate the supply of sustainable products and services**	Line 1: Give incentives to producers and designers to turn to eco-design (17 projects)
	Line 2: Give impulse to cross-fertilization of eco-design in universities and research and planning centres (5 projects)
	Line 3. Make it easier and coordinate the knowledge transfer among actors (7 projects)
Axis 2: **Impulse to the request for a sustainable market**	Line 4. Make more aware consumers (4 Projects)
	Line 5. Strengthen negotiation and participatory processes (4 Projects)
Axis 3 **Strategy Application**	Line 6. Governance (3 projects)
	Line 7. Communication and research (2 projects)

Tab. 3.2: The synopsis of Ecodiscat$_{2012\text{-}2015}$

The reciprocal influence of all those lines and projects will generate a higher eco-efficiency in resource management and in energy consumption, a higher competitiveness of the business sector, and a higher corporate social and environmental responsibility. With the final long-term outcome of the evolution into a green and sustainable economy for future generations.

Because of its transversal relevance, eco-design could affect different consumption and production issues, involving this way many areas of public institutions. For this reason, an internal Interdepartmental Commission of the Generalitat has been established to address the implementation of Ecodiscat$_{2012\text{-}2015}$ and to instrument the collaboration among departments with a potential influence on eco-design.

The Commission is made of a 14 members, President and Vicepres-

ident included, both from Department of Environment. It has been appointed with three functions:

1. the coordination of the actions of the Generalitat with respect to eco-design issue;
2. the definition of a hierarchy of priorities in the actions of all department in eco-design;
3. the support to Department of Environment in implementation, the enforcement, and the assessment of $\text{Ecodiscat}_{2012\text{-}2015}$.

3.3.4 ARPE's Regional network on GPP and sustainable development (Provence Alpes-Cote d'Azur)

The public and sustainable development Provence-Alpes-Côte d'Azur network was established in December 2006 at the initiative of the Europôle de l'Arbois, the associations Ea-Image and Envirobat Mediterranean and ARPE PACA to help communities in the region for integrating the sustainable development principles in their markets. Today led by ARPE, it aims to promote the exchange, sharing and transfer of experience through:

- technical workshops;
- a watch and regular information;
- a provision of resources on sustainable PACA Territories portal;
- collective development tools: frames specifications, technical data.

The network numbers are the following:

- more than 250 structures submitted to the Public Procurement Code (local, state services) beneficiaries of network information;
- a distribution list mail 830 recipients;
- over 400 participants in the workshops of the network since 2006.

This network is addressed to some structures of the region under the procurement code and want to share their experiences and pool. Invitations to workshops and information are transmitted electronically. Registration is free. PACA is a partner network of national public internetwork control and sustainable development led by ADEME. There are nine networks "public order and Sustainable Development" covering 14 regions in France. Both tools were created by the inter-network:

the National exchange portal www.achatsresponsables.com. This portal brings together news of all networks. A National platform for exchange and sharing of experiences in free access to all public purchasers is www.achatsresponsables-bdd.com. This tool provides contacts and documents listed according to their nature (guide, specifications, experience feedback, deliberation...), product categories (vehicles, computers,...), the considered areas (environment, insertion,...), location. This database is based on a posted by self-entering public purchasers.

3.3.5 Intercent-ER

Intercent-ER, regional agency for the electronic markets development, is an innovative way to handle the purchase of goods and services through electronic tools. The job of the agency is to promote and support the optimisation process of the public procurement, using a technological platform provided by Emilia-Romagna Region.

The tasks of the agency are:

- reduce the price per unit by aggregating the demand and monitoring the spending;
- propose new development plans in order to simplify the public procurement processes, supporting the diffusion of e-procurement and the standardization of proceedings;
- grant the efficiency and the high quality of the service, ensuring continuity, wide supply, measurement of the products quality in relation to the public administration needs;
- promote, with communication campaigns, the involvement of more administrations, to get their needs and their public procurement data;
- be in the role of interface to the suppliers, stimulating the participation of local SMEs, in order to develop competitive skills, new purchasing strategies and e-procurement.

The intervention area of Intercent-ER concerns analysis of the demand, sourcing and supply monitoring. The phases of program and handle of the procurement are still inside the single public administrations.

The agency works for Emilia-Romagna Region and other regional public bodies, included the local health service bodies; local bodies and

public law organisations who insist and work on the regional ground, included universities; other public administrations, entities and public law organisations, even belonging to other regions.

To support the optimisation process of the public procurement, the agency has got 3 tools:

- agreements: after a public tender, the agency makes a general agreement for which the suppliers commit to agree to the established conditions and prices, up to a predetermined number of goods or services. After that the agency arranges e-catalogues describing the goods or services that are object of the agreement; the Emilia-Romagna Region and the connected regional entities are obliged to participate at the agreements, while the local bodies can do it at their own choice;
- e-market: it gives the possibility to purchase directly from catalogues of selected suppliers;
- public e-tender: procedure of choice handles with electronic support, that makes possible the presentation and classification of the offers in real time, with pre-established methodologies and criteria.

Furthermore, the administrations have the opportunity to check out a database of the previous agreements and stipulated contracts and a list of the accredited suppliers. There is also the possibility to create purchasing groups together with other administrations.

Intercent-ER is particularly careful at green and social procurement: in order to promote them, many tenders and agreements include minimal and optional requirements to which supplies must respond. Futhermore, in 2012 Intercent-ER realized a guide to social procurement, to address and support the public administrations on this theme.

3.4 Social marketing and opinion campaigns

Social marketing is the use of marketing strategies and techniques to convince a group of users to voluntary accept, change or leave apart a specific behaviour to get a benefit for the community as a whole. For these reasons, it is applied mainly in health and environmental issues.

As conventional one, social marketing use different levers: price, product, communication, and – most of all - opinion campaign. The great difference with standard marketing activity is on values and objectives, since the first one is directed to profit maximization, while the second one, as we said, to benefit maximization for users.

3.4.1 ConsumAbile

The communication campaign ConsumAbile is an initiative of the Emilia-Romagna region to raise awareness for sustainable consumption.

The first two editions (2007 and 2009) were addressed to all citizens and, through catchy slogans, colourful materials and high-impact graphics, invited people to change their daily behaviours related to food, transport, energy, the management of the home, at their free time, etc., to be more sustainable from the environmental viewpoint and from the economic and social development. An important novelty has been introduced in the campaign 2014.

The target audience of this edition are public employees, seen as consumers and those responsible for purchasing and logistics management and information technology of Public Administrations of Emilia-Romagna region. In practice it is encouraged the correct behaviour in the management of goods and services in public workplaces, avoid waste, make better use of resources. But it is also supported the region in terms of promotion of green purchasing. To achieve these objectives, the campaign has been set to prevent the use of paper, focusing everything on web. Special adhesive signs were made (which can be downloaded and then used by every administration who would be interested to extend this experience) fro stimulating the virtuous behaviour of their employees. A handbook of good behaviour has made for regional public employees and a data base of best practices.

The employees of the Emilia-Romagna Region found every morning on their internal website (intranet) an online virtuous advice (pill) that suggests sustainable behaviours to keep in the workplace. In total, several dozen suggestions divided by subject. There are also two types of videos: six for the promotion and the awareness and eighteen for e-

learning, which is specifically targeted to the leaders of green purchasing, in order to get a quick training course dedicated to the tendering procedures of the GPP. Always for GPP, on the site a tool kit for green purchasing will be made available to users. In addition, numerous meetings for the promotion of a healthy diet and two major events are organized that will feature the employees of the PA region.

Finally, the news of this edition: the production of a dozen thematic audits (waste-buster) made in collaboration with the CEAS (Centre for Education for Sustainability) and consumer associations. In practice, meetings with experts in the workplace to directly evaluate environmental points and waste of public facilities in which they work. From the logistics of buildings, to access to the workplace in the context of sustainable mobility. From energy consumption during the production stages, to the good behaviour as always switch off your computer or the printer before exiting.

3.4.2 Andalusia Award for Corporate Excellency

The "Andalusia Award for Corporate Excellency", granted in the first decade of 2000 by the Council for Innovation, Science and Corporation, has worked as an impulse for the adoption by Andalusia firms of a management system rooted in innovation and knowledge principles to improve competitiveness.

The Award was addressed to four modality, not reciprocally exclusive:

1. Corporate Social Responsibility, for the incorporation of policies, strategies and practices witnessing the social involvement of the firm and its interest in sustainable management
2. Corporate innovation, for the incorporation of innovative methods and technologies in their productive processes, or for the development of innovative products and services, generating higher added value for the firm related to the reference industry;
3. Cooperation among firms, for the drawing up of deals and for the development of cooperation activities as a mean for innovation and to succeed;
4. Management Systems, aimed at granting companies who showed competitive advantages in the marketplace, due to a progressive evolution in the implementation of well-known management models.

For each modality, two categories are considered: SME (less than 250 employees or a business turnover of 50 millions of Euro) and Great Enterprise.

3.5 Pilot projects, sharing platforms, and certification tools

Finally, there are many others tools that we can gathered in a generic residual family of policies. They are characterized by the fact of being punctual actions, such as pilots and experimental projects, platforms where to get information (even though not being a real and well-defined network) or certification tools to address environmental improvements.

3.5.1 Green Public Procurement

Green Public Procurement (GPP) is the lexical form used to identify the integration of environmental criteria and environmental-friendly products in the public sector demand for goods and services.

Recalling the European Commission definition, "Green Public Procurement (GPP) is a process whereby public authorities seek to procure goods, services and works with a reduced environmental impact throughout their life cycle when compared to goods, services and works with the same primary function that would otherwise be procured" (COM (2008) 400 Public procurement for a better environment).

The new approach for public bodies must encompass the search for outcomes and solutions with the lower impact on environment along the whole life cycle of products.

According to European Commission, EU public bodies' expenditure for goods and services is equal to two trillion euros annually, equivalent to some 17% of EU-27 GDP. A policy supporting the public procurement of "green" products would be able to tip the market forwards more ecological artefacts and services, contributing to reach the ambitious targets embedded in Europe 2020 strategy: the abatement of 20% of GHG emission, the 20% increase in energy saving, and the same 20% enhancing of renewable energy with respect to fossil sources.

In addition, GPP has become in last year a relevant tool for both the public expenditure containment, and the technological change. As a matter of fact, the emphasis on life cycle assessment suggests a strong involvement in eco-design and other solutions, meaning a push in innovation.

Each Member State ought to define a National Action Plan (NAP) by which implement GPP. These plans have now been adopted by a majority of the EU. They are intended to address the environmental, and in some cases also social, impacts of public procurement. Many NAPs reflect high levels of stakeholder engagement, including procurers, government representatives, suppliers and trade associations. Identification and prioritisation of product groups is usually performed by considering the level of government spend on a particular product group, together with the level of environmental impact that the product group has. In many cases NAPs contain ambitious targets and specific measures to promote GPP and give an overview of training, communication, monitoring and other activities undertaken by Member States in the field of GPP.

The basic concept of GPP relies on having clear, justifiable, verifiable and – as previously pointed out - ambitious environmental criteria for products, services and works, based on a life-cycle approach and scientific evidence base.

Technical reports are available for each product group, outlining scope; technical characteristics; key environmental impacts during production, use phase and end of life of products; existing technologies; related legislation; market availability and cost considerations. Based on these reports, core and comprehensive criteria are developed for each product/service group. The core criteria can be applied with minimal effect on cost or verification effort, whereas the comprehensive criteria aim for the best environmental performance available.

3.5.2 Eco-Industrial Parks (EIP) and Ecological Equipped Productive Areas (EEPA)

Industrial areas are often growth poles that focus their attention and concentrate their actions towards the combination of productive efficiency and profit maximization, often without considering the en-

vironment they operate in. The environment, being the delicate mix between natural elements and artificial ones, means not only resources but also landscape, society, and economy.

On the contrary, an Eco-industrial park is a community of production and service companies at a common location where the member companies seek better environmental, economic and social success through cooperation in solving issues connected with environment and use of resources. Through cooperation, the community's companies try to reach a common benefit which is greater than the sum of individual benefits achieved by each company through improving its success.

Eco-industrial park's goal are to improve economic success of the included companies and minimise environmental impacts in the production process. The main priorities that derives from the definition of the EIP include arranging the area in a way which preserves its natural and landscape characteristics, minimising natural resources consumption (in particular water and energy), using renewable energy to power the plants, addressing to standards in accordance with for efficient deployment in building infrastructure, reducing the distance from the place of origin of materials, addressing all activities to sustainability in all its forms, strengthening connections with local communities.

An EIP hosts a group of producers oriented to increase their economic performance through the collaboration with other members of the community in solving the problems connected with environment and resource management (Lowe et alia, 1997). They are the factual realization of the notion of "industrial symbiosis" (Chestow, 2000), that claims for the importance of ecological principles (interdependence, cyclical nature of process, flexibility, resilience, biodiversity in development paths) even in the industrial activity.

There exists different models for industrial symbiosis; the EU Ecomark project distinguishes among "industrial symbiotic system" (a bulk of strictly industrial activities with an exchange of resources and waste, and with a resource management integrated system), "mixed system" (an aggregation of industrial, agriculture, residential, and service industry activities, reciprocally related with respect to resource rescue and use), and "virtual symbiotic system" (a network of sprawled activities, not strictly industrial, exchanging scrap materials).

First EIPs are experimented in Northern America: Canada initiates

the "Industrial Park as Ecosystem" project in 1992, establishing the Burnside Ecopark (Nova Scotia). In the mid-1990s the US Environmental Protection Agency (USEPA) and the Council on Sustainable Development supports the Federal Eco-industrial Park Project, to give birth to the first US EIPs in Cape Charles and in Fairfield (Virginia), Burlington (Vermont), and Brownsville (Texas), the latter being a case of virtual symbiotic sistem. In Europe, after the quintessential experience of the eco-park of Kalundborg, other cases could be spotted in France, Italy and in the Balkan countries.

Here, EIP takes mainly the form of a Sustainable Equipped Productive Areas (EEPA), maybe with a less ambitious approach than the EIP's one, aimed at sharing joint solutions among localized producers for the environmental impact reduction, in the strategic framework of the production cycles closure.

Within the framework of relevant European strategies (Lisbon, Gothenburg, Europe 2020) and according to EMS/EMAS standards, EEPA proposes a multi-dimension approach for guaranteeing the latest balanced development goals. They are the achievement of a shared management, methodology tailored on the specific areas; the setting up of tools and procedures for the creation and management of a productive area in a sustainable way; the implementation of EEPA model by integrating economic efficiency, environmental, social and cultural concerns; the creation of economic advantages to tenants through scale economies by the use of centralized infrastructure and services; the improvement of the general quality of life in the territories interested by the localization of EEPA areas.

In conclusion, EEPAs are an excellent opportunity of business settlement, since they offer scale returns, infrastructures and common services, and an environmental and resource management that bring in a tangible costs reduction for water and energy provision, and a complete lot of benefits for employees, such as a better internal environment.

3.5.3 Plastic waste project in Tuscany

The Region of Tuscany provides, first time in Italy, the economic incentives for green procurement (GPP) that will make the govern-

ment, through three protocols signed in 2011 by the Regional Environment Delegate, by CONAI (National Packaging Consortium), and the ANCI (National Association of Italian Municipalities). The first, signed by the Region, CONAI and National ANCI, is a three-year framework agreement for promoting the supply chain of the recycling of recovered materials and products, giving impetus to green purchasing. The second protocols of understanding on the plastic, in addition to what has already been signed in 2010 between the Region, Corepla (Plastic Recovery Consortium) and Revet Spa, (to which were added today Anci, Anci Tuscany and Pont-tech) in order to ensure the recycling of plasmix (obtained from Revet from the treatment of heterogeneous plastics derived from separate collection of rubbish in 219 municipalities of Tuscany), through new research, in addition to what has already been implemented by Revet through the 5 projects dedicated to the creation of Re-produced in Tuscany (outdoor furniture, soundproof panels, hollow sections for prefabricated parts for automotive, pallet; with the addition of the "consumer" for the market of household products). The Region will invest 15% of the eco-tax designate for waste collections, for a total amount of EUR 1 million in support of the municipalities for green purchasing of recycled plastic products. Revet and Corepla are also submitted to expand the research for developing the projects launched on the market and for promoting the Re-produced by plasmix, as well as investing 75.000 euro for research into new "consumer" products, for trade. For glass, a new protocol was signed between the Region, CONAI, ANCI, Anci Tuscany, Coreve (Glass Recovery Consortium), Revet and the Revet Glasses for new outlets for recycling, diversified by the material that you can not start the glassworks; the protocol also provides for five years, the transition to the "mono-material" glass collection throughout the region. Economic investment in this case are 1 million Euros, 15% of the proceeds of the eco-taxes for RD (Italian acronym for separate collection of rubbish), in support of the municipalities for use in public works of materials containing glass, and another million Euros to support municipalities and operators in the costs of transition to the "mono-material" collection.

3.5.4 Catalonian Environmental Quality Emblem

The Catalonian Environmental Quality Emblem (*Distintiu de garantia de qualitat ambiental*) is an official ecological labelling scheme established in Catalonia in 1994 for products (Decree 316/1994 of Generalitat de Catalunya), and extended in 1998 to services (Decree 296/1998).

The Emblem is awarded on voluntary basis to four categories of product and services (1. tourist accommodation, 2. services, 3. motorcars, 4. goods) that fit exact requirements in terms of environmental performance, stricter than the legislation in force. Nowadays the Emblem is assigned to 200 companies (44 supplying goods, 156 supplying Services companies), 830 products and 156 services.

The Emblem is on one hand an instrument to "signal" in a reliable way the real quality of a service or product to potential users affected by an information asymmetry problem (the inability to identify the same quality), and on the other hand a marketing tool for higher quality goods, that can in this way get a higher market price (Silvestri, 2000).

Being a "trust" system, any quality certification relies on the reputation of the institution that awards the guarantee. In this case it is the Generalitat. More specifically, the *Distintiu* is managed and controlled by the DG Environmental Quality of the Territory and Sustainability Department of the Generalitat, with a Steering Committee made up by internal technical experts of the same DG, and a Council for Environmental Quality that pools together the competent bodies on ecological labelling of Catalonia: the same Territory and Sustainability Department, flanked by other two institutions of the Generalitat (the General Laboratory for Tests and Research, and the Health and Social Security Department), the Council of Chambers of Commerce and Trade of Catalonia, the Catalonian Institute of Consumption, the Nature Protection Council, employers organizations, trade unions, consumer organizations, environmentalist associations.

The rationale is to ensure the consideration of the widest range of

perspectives and the highest independence and neutrality from any kind of particular interest in the assignment of the Emblem, and of the related logotype, making of it a credible policy to support sustainable production and consumption.

It is worth noticing that the *Distintiu* works exactly on the same basis of EU Ecolabel, the ecological brand that helps to identify products and services that have a reduced environmental impact throughout their life cycle. Having been established before of the launch of Ecolabel, and being both labelling systems of Type I, there is no European law and policy incompatibility issue with respect to the Catalonian Emblem.

Because of the more rigid implementation scheme for Ecolabel, and its lower adaptability to local realm, many Catalonian activities address to the Emblem instead of the EU Ecolabel, mostly when they are supplied by SME. Anyway, firms getting both certification are not rare, for instance in the tourism accommodation sector, in many cases starting from the *Distintiu* and then apply to the more challenging EU Ecolabel or EU EMAS (when the productive process is certified instead of the product)

3.5.5 Washable dipers projects

The disposable diapers are a real environmental catastrophe: in fact, constitute about 20% of the waste found in landfills and that their decomposition, which requires between 200 and 500 years, it releases harmful chemicals, including sodium polyacrilate , tributyl-tin (TBT), dioxin, xylene, ethylbenzene, styrene, isopropylene. If we think about only one child in the first 3 years of life using something like 6,000 diapers, one tonne of indistinguishable waste, with costs of collection and disposal, which generally hovers around 200 Euros, multiplying these figures by the number of births in each municipality and it's easy to understand that in addition to a problem of volume of waste is also a problem of cost!

Already ten years some municipalities, pioneers in Italy, started to promote the use of cloth diapers for babies. If at the beginning it was mostly Veneto and Friuli municipalities, today they are now nearly 300 municipalities throughout Italy (5% of the total) involved in the

promotion of washable diapers in different ways with each other. As for the users, in smaller municipalities, the trend is to involve all families with aged 0-2 years children, while in the larger ones, on the basis of available resources, a defined number of interested families to use of washable is selected. In some cases, rather than families, kindergartens are involved in communal nests. Compared to the incentive, it goes from the kit as a gift to the contribution (usually around 100 Euros) for purchasing at affiliated retailers to the waste tax reduction for users of washable.

3.5.6 Emblem for Environmental Quality of Andalusia

The Regional Government of Andalusia is the promoter of an environmental quality emblem very similar to the one described in previous pages (See Section 3.5.4); the second is an award for excellent firms in Corporate Social Responsibility, in force from 2000 to 2010.

The "Emblem for Environmental Quality of Andalusia", descending from the Regional Law 7/2007 on the Integrated Management of Environmental Quality and established by the Decree 22/2010, is aimed at giving to consumers and users reliable information about the "ecological orientation" of firms distinguished by it, namely about the ability in controlling and reducing at minimum the environmental impacts of their activity.

A voluntary but official policy for environmental improvement, managed by the Regional DG for Prevention and Environmental Quality, the Emblem gives to assignees the opportunity to build up a reputation of environmental friendly firm that could be even exploited in the marketplace. Moreover, it would stimulate their use and development of clean technologies.

3.5.7 Life+ Ecoedicion

Ecoedicion, financed by EU Life+ programme in 2010, is carried on by the Andalusian Ministry of Environment; the project aims for the publishing production improvement and goods procurement from a social

environmental approach, as well as providing the publishing sector and related industries with a set of criteria for eco innovation and sustainable production in order to face problems of environmental efficiency.

The main goal of the project is the development of a reference brand that enables public administration to promote more sustainable publications as well as helps public and private consumers to recognize clearly publications that take into account environmental issues.

The main actions of Ecoedicion are:

- diagnosis and assessment of publishing production and distribution in public administration;
- creation of a web page and promotion on social networks;
- settlement of environmental criteria for publications and development of an Ecoedicion Manual;
- development of an on-line tool in order to spread sustainable criteria for green publishing;
- pilot projects;
- campaign to join the Ecoedicion project.

The project actions are especially addressed to the public services of the andalusian public administrations, that joined the project at first and are the main target audience; but the committment is to involve also private publishers, printers, manufacturers of raw materials, distributors, booksellers, etc. and associations, organizations and foundations linked to the publishing sector. Private citizens too are a target, as the final consumers of the chain.

The most important results of the project are an environmental diagnosis of the publishing sector, pilot projects and communication campaigns, increasing of green public procurement in this sector.

3.5.8 Wind power development areas (ZDE)

This new device to support the development of wind energy is described in the program law no. 2005-781 of 13th July 2005 laying down guidelines for energy policy (law POPE) of France. It modifies

the support system for wind energy. The Act introduces the "zones for developing wind" (ZDE French acronym of "Zones de Développement de l'Éolien). Until then, wind parks with power less than 12 MW (megawatt) could take advantages from the obligation system to purchase the generated electricity, according to a rate defined at national level.

The ZDEs are adopted on a proposal by the prefect of Commons. They must take into account three criteria defined by law:

- wind potential;
- opportunities for connection to electric net;
- the protection of landscapes, historical monuments and protected landmarks.

Each ZDEs are defined on the basis of these parameters, a perimeter and a minimum and maximum range of power. During the guidelines of dossier, the prefect also ensures departmental coherence of ZDE and the grouping of installations to protect landscapes. From March 2008 private companies, EDF partner, as "balance responsible" for the RTE (Réseau de Transport de l'Electricité, a subsidiary of EDF) can redeem the production of wind turbines outside the Wind Development Areas and re-integrated into the network. The connection to an electricity grid of small wind turbines out ZDE becomes possible. The proposed rate is much lower than the price of public electricity supply and often less than half the purchase price of electricity produced by industrial wind turbines in ZDE. Direct Energy with the installer Weole Energy, France Eoliennes... are some of the companies that offer contracts electricity redemptions produced by wind turbines off ZDE.

The year 2009 will mark a turning point: the 50 measures on energy to put into practice the Grenelle 1 has shown a willingness to oversee the development of wind energy, and to avoid the dispersion of wind turbines on the territory. The planning act is still in Parliament, but the prefects and presidents of regional council must establish "regional scheme for climate, air and energy" based on national objectives. These regional plans are expected by the prefects to issue building permits. The scheme take into account national qualitative and quantitative objectives for each region for the enhancement of renewable energy potential in its territory. Decrees identify the mixed

power facilities that can benefit from the obligation to electricity purchasing (n°2000-1196) and establish the CODOA (certificate qualifying purchase obligation) issued by the prefect. The government has chosen to classify the wind in the category of classified installations for environmental protection. The measure will come into force in 2011. During the review of the law Grenelle 2 by the Senate in 2010, the CMP has confirmed that wind turbines can not be located within 500 meters of a dwelling unless already defined at the date of publication of the law areas. The Senate and the Assembly voted the Finance Act 2010 that aligns wind farms on other energy products. All production plants of fossil or renewable energy source will be submitted in 2010 to the same "value added tax". Senators also restored a link between tax and territory (common; departments and regions). And the new value added tax will be collected by the communities on whose territories are located companies.

3.5.9 Ecofunding

Ecofunding, financed by the Med Programme and started in December 2012, involves many partners: Council of Chambers of Commerce of the Valencian Region, Confindustria Sicilia, Verona Innovazione - Special Agency of the Chamber of Commerce of Verona, Chamber of Commerce and Industry of Nice Cote d'Azur, Chamber of Commerce and Industry of Marseille Provence, University of Algarve - Division of Entrepreneurship Support and Technology Transfer, Development Agency Zagreb, Chamber of Commerce and Industry of Ioannina, Cyprus Chamber of Commerce and Industry, IVACE - Valencia Institute of Business Competitiveness and Jozef Stefan Institute - Energy Efficiency Centre.

ECOFUNDING aims at creating a new structure to promote investment and access to energy and eco-innovation funds in the MED area in a key moment for European strategic development where two factors occur: a major credit and investment crisis and an excessive dependence of the southern Europe economies on energy.

Therefore, ECOFUNDING focuses its efforts on several activities. First, Ecofunding aims to incorporate the results of other projects and policies developed in the involved countries in a single instrument for financial support: the catalogue of public and private funds including all financing resources. Moreover, a transnational platform of global access services is being created, where other instruments to facilitate financial management and innovation of SMEs are included: financial simulators, project search, search of green technology and supporting tools to develop business plans, among others.

ECOFUNDING wants to achieve concrete results and reach enterprises. The prject provides SMEs consulting services to facilitate the management of the services offered in the platform. At the same time, innovative tools will be designed such as a tool for financial self-diagnose, a bank rating calculator system and an online financial dossier. The project counts on experts in the energy sector and green business who can help companies to develop their business and investment plans: 360 SMEs will be diagnosed, 45 investment plans will be made and 20 companies will develop projects thanks to the financing obtained.

In addition, concrete actions have been planned to promote direct contact between investors and entrepreneurs: the organisation of nine B2B events and the launch of an online searching funding service at transnational level to boost business cooperation and to promote the access of local initiatives to transnational and EU funds.

Chapter 4

Green products and consumption, green production, industrial areas: the results from the working groups

4.1 Green products and consumption

Among the capitalized projects, the ones focused on green products and consumption are mostly Ecodesign Pilot Project, Ecotech Sudoe, Low Cost-Zero Waste Municipality and Biofuels 2G. So we will discuss the subject starting from the outputs of these four projects, going on with an analysis of the stakeholders, the points of strengths and weakness and the policy recommendations emerged.

4.1.1 Projects outputs about green products and consumption

The main outputs developed in the capitalized projects of ECO-SCP-MED to support SCP policy are:

1. LCADB Sudoe (Ecotech Sudoe project). A Life Cycle Analysis database for the South Western European region (Portugal, Spain and France).
2. edTool (Ecodesign pilot project). An ecodesign web tool addressed to companies and administrations.
3. CO2ZW® Carbon Footprint tool (Low Cost – Zero Waste Municipality). An excel based tool that calculates the climate impact of waste management.
4. Exploitation plan for a sustainable and effective second generation biofuels application in an urban environment (Biofuels 2G project). A plan providing the basis for the development of a

stable waste cooking oil collection network, in order to produce biodiesel from it.

The products and consumption issue, as we can see from the outputs of the capitalized projects, involves the capacity of looking at a product in a comprehensive way (from cradle to grave), thinking both at raw materials and at waste, analyzing all the life cycle and getting as many data as possible.

In this rationale, the first output to be presented is the LCADB Sudoe, a collection of Life Cycle Inventories (LCIs) for the French, Spanish and Portuguese area. The database tackles different topics: agriculture; fishing; cities; energy production; waste treatment; water; manufacture processes; services; transport; consumption. It is available on line, through a registration to an easy access platform. The LCIs are uploaded inside a format that guarantees the uniformity of data sets. At present, the partners of the Life Cycle Spanish Network are using and increasing the database, sharing the data they collect during their research work related with private sector.

edTOOL is an ecodesign web tool for companies and administrations.

CO2ZW® Carbon Foootprint Tool provides a means of calculating the greenhouse gas (GHG) emissions (in carbon dioxide equivalents) emanating from the waste operations of European municipalities. The tool is an Excel-based calculator which, with the input of municipality-specific waste data (or national data as a default), permits the user to obtain a municipality-level carbon footprint of waste treatments (infrastructures are not included). The user will be able to use this calculator to support GHG monitoring and reporting initiatives as well as to provide an estimation of potential GHG reductions (or additions) associated with management and technological changes in local waste operations. Even if the calculator has been designed to function most effectively at the municipality scale, at the regional level, CO2ZW® has been used to assess the environmental impact of waste management policies in Catalonia, both for the past years and in a future 2020 scenario.

The Exploitation plan for a sustainable and effective second generation biofuels application in an urban environment is based on the projects' results and demonstration activities. The aim of this document is

to describe in detail the ways in which project deliverables and experience can be exploited as they were collected from all participants in the consortium. The exploitation plan consists of the following sections:

- Waste Cooking Oil (WCO) collection;
- Conversion of WCO to Biodiesel-2G (White Diesel) via Catalytic Hydrotreating;
- Utilization of Biodiesel-2G (White Diesel) in diesel engines.

All three aspects of the BIOFUELS-2G project, which can be exploited independently or in an integrated way, offer both economic and environmental feasibility. Firstly, the establishment of a Waste Cooking Oil (WCO) collection network is essential from an environmental/ecological point of view as the disposal of WCO can significantly contaminate water and marine inhabitants. Secondly, the conversion of WCO to Biodiesel (White Diesel) can be exploited in large scale as it is an economically feasible recycling approach that gives a solution to the problematic disposal of WCO, which is abundant in countries such as Greece. The WCO conversion can achieved either by stand-alone individual catalytic hydrotreating plants (with or without incorporation of solar hydrogen production systems) or by co-hydroprocessing in existing catalytic hydrotreating units of existing refineries. Lastly, the utilization of Biodiesel-2G in diesel engines is important for the effective integration of this new fuel in the diesel market, without negative implications in the vehicles of application.

4.1.2 Stakeholders

The main stakeholder involved in green products and consumption policies are:

- Municipalities, local administrations and other public bodies; they are the main promoters of SCP policies about products and consumption and, in order to set in effective actions, they need data and support tools.
- Researchers and consultants interested in environmental issues; they can use the tools and datasets produced by the capitalizing projects in order to implement researches around the green products and consumption area; they can also enrich and improve the tools and databases themselves.

- Firms, managers, designers, engineers; the developed tools, especially LCADB Sudoe and edTool can help professionals thinking, projecting and realizing greener products, with several advantages in term of economic and energetic save, opening of new markets, better reputation. For this reason, Ecodesign pilot project involved 6 Catalonian companies in the development of products with ecodesign principles. The exploitation plan of Biofuels 2G also suggests interesting and developable business activities, especially for the areas of food service and catering, waste cooking oil collection and biofuels production. Low Cost - Zero Waste Municipality is completely aimed at public administrations, there is not a business side.

4.1.3 Obstacles and barriers, points of strengths and opportunities

The improvement of SCP policies around green products and consumption meets some relevant obstacles, such as the lack of incentives and official public financial lines dedicated to the development of green products and sustainable tools. On the other side, the business knowledge and awareness about the existing opportunities and tools is very low.

But the theme presents also many opportunities of development and mainstreaming. For example, a diffusion of LCA methodology and data can increase the life cycle thinking and support the creation of new products and services. The availability of data can start new ecoinnovation projects. Moreover, considering that green consumption is growing day by day, ecodesign methodology adds value to products and services and increases their competitiveness on European markets. An opportunity given by CO2ZW® and more generally waste management tools is provided by the progressive changeover from waste taxes to tariffs, an SCP policy that starts to be proposed by several municipalities and can stimulate private sector to action.

Focusing on the capitalized projects, they outline some interesting points of strength and weakness. Starting from the positive aspects:

- LCADB Sudoe is being implemented by the Life Cycle Spanish Network partners; that makes it possible to keep it updated;
- Companies involved in Ecodesign Pilot project reduced the environmental impact of their products by being more efficient

with the use of raw materials and energy as well as by minimizing wastes and emissions from whole product's life cycle. Each of the six companies involved into the project ecodesigned one product. Furthermore, some of these companies, after the satisfactory results obtained within the project, are now ecodesigning more products.

- The companies involved in Ecodesign are seen as eco-innovative at national level, so the project helped to promote Ecodesign in Catalonia.
- Workers participation was required to implement the ecodesign methodology created for the Ecodesign pilot project. They were asked about different environmental aspects of the product to be ecodesigned and their contribute was useful to draw the environmental qualitative characterization of the product.
- Inside Biofuels 2G project, waste cooking oil companies encouraged the participation of suppliers and clients and, in some cases, trained their workers.
- The oil collection activities of Biofuels 2G were accompanied by public activities to raise awareness on the issue.

About the weaknesses stressed out by the capitalized projects, the most relevant ones were about the lack of involvement of local communities as active stakeholders. Even if products and consumption are matters that involve citizens in the every day life, no forums, events, discussion groups have been settled. Even the involvement of workers was extremely reduced. In the case of Biofuels 2G there is also a lack of specific data to support the experimentation and to make stronger the results. Moreover, there is a great participation from public administrations for the application of SCP at local level. However, there is lack of participation from SMEs, because they have high economic barriers, and even more since the financial crisis.

4.1.4 Policy recommendations

Ecotech Sudoe, Ecodesign, Low Cost – Zero Waste Municipality and Biofuels 2G provided some useful policy recommendations regarding green products and consumption:

- National life cycle databases are required to contribute to the im-

provement of the productive sectors of the Mediterranean area, by means of collecting and developing life cycle inventories.

- The design of green products and services has to be based on high quality environmental data, in order to help companies, designers, architects, engineering and any professional involved in creation process to take the best decisions.
- The circular economy requires the application of LCA thinking and ecodesign methodology, in order to produce green products that can be created and used with low impact and reused and recycled at their end-of-life.
- Local and national administrations should promote ecodesign processes by applying this methodology into their services as a reference for companies. Moreover, governments should promote more ecodesign projects in collaboration with private companies.
- R&D outputs should be disseminated in the private and/or public sector, in order to be exploited effectively.
- The national or regional authorities responsible for waste management should ask municipalities for environmental assessments (carbon footprint) of their waste management system. This would help to assess carbon footprint of waste management scenarios (real or hypothetical) in order to set long and short term policies supported by environmental criteria.
- There should be economic incentives dedicated to recycle waste cooking oil (WCO), both from restaurants and domestic, use WCO for biofuels/hybrid fuels production, and apply WCO-derived fuels in public and commercial fleets.
- Innovative financing instruments should support SMEs and SCP policy development; more generally financial framework should be improved, strengthening access to capital for SMEs.
- Pilot actions should be funded in order to practically apply SCP in different contexts, test and solve the problems, show the benefit for enterprises and environment and encourage the spreading of positive experiences.
- The lack of knowledge on SCP policy among enterprises and Local Authorities has been identified as a major problem: there is a need to develop training programs and support tools and pro-

vide technical support to businesses and Local Authorities. Also an improvement in cooperation among research centers, SMEs and local bodies could help bridging the gap between theoretical research and territorial needs.

4.2 Sustainability of the production processes

In the ECO-SCP-MED project, thematic areas and key outputs have been identified to better achieve the objectives. The project capitalises outputs and uses the different experiences of capitalised project to achieve a future policy evolution and eco-innovation of the policies in the Mediterranean area. The "Production process" thematic area includes these different projects: MED-IPPC-NET; CSR-NET; AGROENVIRONMED; BAT4MED; ENERMED. In the following paragraphs the main aspects of these projects have been analysed: outputs, stakeholders, obstacles, strengths, weakness and policy recommendations.

4.2.1 The key outputs

The specific outputs developed in the capitalized projects of ECO-SCP-MED for sustainable production processes can be divided in "policy" outputs and "operational" outputs. The first one are the following:

- MED-IPPC-NET Guidelines on the Best Practices on IPPC Permitting and Following-up Procedure (MED-IPPC-NET);
- Interregional Analysis for the implementation of the IPPC Directive (MED-IPPC-NET);
- Regional Network for CSR Competence (CSR-NET);

The "operational" outputs:

- Catalogue of BAT (Best Available Technologies) and BEP (Best Environmental Practices) in Mediterranean Agro-food Sector (AGROENVIRONMED);
- Interregional Characterization Mediterranean Agrofood Subsectors (AGROENVIRONMED);
- Methodology for techno environmental assessment for SMES (AGROENVIRONMED);

- the Process and BAT Databases (BAT4MED and AGROENVIRONMED);

The MED-IPPC-NET Guidelines outputs aims at identifying best practices related to the procedure for granting and monitoring the IPPC permits, in order to improve the implementation of the IPPC Directive in the Mediterranean and to facilitate knowledge transfer to other regions or as a reference frame for those regions that have not yet began the IPD Directive implementation. The Guidelines is based on the study and analysis of the best practices undertaken by the regions that take part in the project. The Implementing Flexibility Methodology (IFM) described as follows allows assigning, on the one hand, the ELV (Emission Limit Values) to each significant emission of the installations included in the field of the IPPC Directive application, and on the other hand, assigning the BAT to each significant emission. Taking into account the environmental performance of IPPC installations regarding their real emission values, consumption and local conditions of the environment, the determination of BAT is carried out through the application of a multi-criteria decision, and, on the other hand, the calculation of ELV is obtained by transforming these inputs into parameters introduced in equations.

The main objective of the Interregional Analysis is bring together the results of the seven Regional Analysis carried out by each Region involved in the project (Andalusia, Valencia, Slovenia, West Macedonia, Piedmont, Sicily, Tuscany), in order to identify common elements in the implementation of the IPPC. The Analysis contains the main conclusions of the regional studies and highlights the best practices on the implementation of the IPPC in the MED area. This Analysis aimed at investigating how the IPPC Directive has been implemented and if the differences are able to affect cost-related competitiveness of firms subjected to the IPPC Directive and located in different Member States. As regards the institutional analysis (legislative, administrative, control and inspection and content of authorisations analysis), it highlights the disparity about the typology of Competent Authority for the permit issue (national, regional or provincial Authority) and the choice of elaborating and publishing guidelines for supporting the application of the Directive. One of the most significant indications concerns

the choice of valorising the concept of BATs and of including them in the permits. This outcome of the analysis is of utmost importance in the prospect of guaranteeing an homogeneous regulatory framework to the IPPC subject companies, located throughout the EU. The analysis of the specific requirements concerning the different environmental aspects that are normally regulated in the permits, shows a great distance between the approach chosen by the different CAs, especially as concerns the "typologies" of requirements, the limit values and the environmental parameters to be used as references for measuring compliance.

The Regional Network for Corporate Social Responsibility (CSR) Competence fosters the implementation of CSR in Central, South an Eastern Europe. The Network aims at improving environmental and social conditions in SMEs operating in the industrial sectors, laying foundation for policies that promote responsible behaviour in business sector. The CSR has a strategic role for the competitiveness and the integration process of markets. It also strengths the market access by raising the awareness of the managing bodies of enterprises regarding practical tools to respond to environmental and social challenges and to develop the capacity of local institutions to provide expert services to support them. The Network wants to achieve and enhance relationships with stakeholders, to increase quality and productivity and to realize operational cost savings at the enterprise level. It is also a platform to foster the exchange of information, experiences and best practices and as a catalyst to establish public-private partnerships and to coordinate CSR-related activities for small businesses in the region. Several countries of the central and Eastern Europe takes part to the Network: apart from Croatia, Bulgaria, Bosnia and Herzegovina, Macedonia, Serbia, Montenegro and Ukraine. The services offered by the Network are: awareness rising, CSR policy advice, technical assistance, research, capacity building, training, in-plant assessment and advisory service.

The Catalogue of BAT (Best Available Technologies) and BEP (Best Environmental Practices) in Mediterranean Agro-food Sector is a "Spatial Techno-Environmental Platform" that provides direct access to the catalogue of BAT (Best Available Technologies) and BEP (Best Environmental Practices) in the Mediterranean region. Moreover it is a geographical web tool that brings together agro-food SMEs, techno-

logical providers, experts, researchers, professionals, public authorities and other relevant stakeholders. The "search section" has a powerful drill down to the database of BEP, BAT and registered companies, and may be used as a direct access to environmentally friendly solutions as well as to companies already applying specific BATs and BEPs for the five agro food sectors: Olive oil, Wine, Meat, Fruit and Vegetables and Diary Products.

Interregional Characterization of Mediterranean Agrofood subsectors is the interregional report that compiles the results and conclusions of the Regional Reports, regarding the use of best available technologies and best environmental practices within the five agrofood sub-sectors identified: meet, wine, olive oil, fruit& vegetables, dairy products. The results of the Regional Analysis constitute the inputs for the development of an Interregional Analysis, which compiles the conclusions of all Regional Analysis and summarise most relevant aspects on the implementation of environmental technologies and best practices within the MED Agrofood Sector.

The Methodology for techno-environmental assessment in SMEs is a Guide for Techno-Environmental Assessment aims at facilitating the identification of technologies and best practices in environmental management applicable in the production processes of the target companies (SMEs) that allow to prevent and decrease pollution at source. Providing a collection of improvement proposals that are used as a guide for the organization.

The Process and Best Available Techniques Databases (BAT4MED) is a web tool and a search engine of BAT, effective and advanced technologies that help reduce negative impact of industrial activities to the environment. The adoption of BATs can help to improve the management of material flows, increase energy efficiency in processes, reduce consumption, waste generate and help to cut emissions.

4.2.2 The main stakeholders

The main stakeholders involved in the different projects regarding production processes are the following:

- Small and Medium Enterprises (SMEs): they are the key actors of the industrial development and responsible of the environ-

mental and social behaviour inside them; they are responsible of the externalities from industrial activities in terms of environmental impacts, social responsibility, resources savings, innovation services and sustainable management applicable in the production processes.

- Local authorities: they are responsible for the implementation of the EU legislation; they acts as facilitators for the sustainable objectives achievement and for enhancing the competitiveness; they improve innovation and sustainable development by fostering and adopting integrated policies and environmental solutions.

4.2.3 Obstacles, strengths and weakness

The lack of incentives for introducing environmental management system in the production processes is a widespread obstacles in the whole Mediterranean area. Green solutions require long-term strategies and short-term costs and enterprises' goals should be supported by simplification strategies and incentives related to environmental and social aspects. CSR and sustainability are still perceived as a cost focusing on end of pipe solutions. The transition to the green economy and solutions can improve the competitiveness and the attractiveness of enterprises and local production system. The path towards economic and sustainable strategies should be supported by local authorities as facilitator of the implementation of SCP policies and the adoption of integrated approach to development policies. A general lack of technical support to enterprises and local authorities creates barriers for the implementation of SCP policies and facing the increasing challenges of the EU legislation and to approach the green economy. The operational ouputs are based on a general methodology developed to be applied in SMEs of the agro-food sector; in the same way, the Catalogue of BAT (Best Available Technologies) and BEP (Best Environmental Practices) in Mediterranean Agro-food Sector and the Process and BAT Databases cover a limited number of agro-food sub-sectors and textile sector.

The adoption of the EMAS scheme and the IPPC directive are relevant points of strength for the sustainability of production processes and the SCP policies and they can also improve the sustainability of local development and the competitiveness of enterprises. At local level,

there is a great participation from public administration for the application of SCP in cities, but there is lack of participation from several SMEs given that have high economic barriers.

The strengths are the following:

- the existence of best practices to disseminate fosters the development of a common framework for implementing green solution to production processes;
- the collaboration among enterprises and research institutes increase the entrepreneurial innovation and competitiveness by developing green solutions and sharing skills and experiences;
- The implementation of EU legislation in terms of SCP and environmental voluntary tools by local authorities fosters the sustainable objectives achievement; local authorities are stimulated by EU to develop integrated policies and increase the SMEs possibilities to compete on international markets;
- the opportunity to take long-term decisions regarding environmental issues and sustainable development;
- regional Action Plan for sustainability should support the spread of SCP approach;
- the adoption of BATs can help to improve the management of material flows, increase energy efficiency in production processes, minimizing consumption, waste generate and helping to cut emissions.

Necessary and innovative outputs can support policy makers and regional authorities in the implementation of the new legal requirements of the Industrial Emissions Directive and the improvement of the implementation of the IPPC Directive requirements. The policy and operational outputs have been developed to support the companies, mainly SMEs, to identify and to implement environmental technologies and practices to improve their environmental performance assuring the compliance with the environmental legal requirements.

4.2.4 Policy recommendations

The capitalized projects – MED-IPPC-NET, CSR-NET, AGROENVIRONMED, BAT4MED, ENERMED – identifies several policy recommendations regarding sustainable production processes and SCP policies:

- a "guideline" document for the drafting of the monitoring and control plan for installations subjected to Integrated Environmental Authorization, or the regional BAT guides, which can help companies, consulting and Competent Authority in developing the IPPC requirements into a more eco-efficient way;
- coordination Technical Committees with technical consultant task, that aim at realizing the comparison and the harmonization among competent offices and their reciprocal experiences;
- assuring a common approach to include homogeneous contents in the Integrated Environmental Authorizations;
- dissemination of best practices regarding the procedure for granting and monitoring IPPC permits, in order to improve the IPPC Directive implementation in the Mediterranean area, as well as to facilitate knowledge transfer to other regions or even serve as a reference for those regions that have not yet begun to implement the IPPC Directive in industrial activities;
- the environmental protection principle has been incorporated into the successive common action programs on environment and sustainable development; it is essential for preventing future pollution or environmental damages rather than combating the negative externalities;
- encouraging eco-innovation in companies belonging to the Mediterranean Agro-food Sector, particularly SMEs, by creating a platform which promotes the transfer of technologies and best environmental management practices.
- a widespread integrated approach for reducing environmental impacts arising from agribusiness and the agricultural sector (waste and GHG minimization, water consumption and energy efficiency) during the production processes;
- public grants and incentives might allow the implementation of experimental operations corresponding to a long term strategy and aiming at being then disseminated;
- involvement of the economic stakeholders of renewable energies in shared strategies;
- a gradual approach toward adoption of tailored elements the IPPC scheme for improving and enabling voluntary action rather than introducing additional legally binding or costly re-

quirements to the industry or requiring substantial institutional and administrative capacity. Four key measures – BAT guidance, financial incentives, capacity building, improvement of information availability and exchange – create the enabling environment to carry out a simplified step-by-step approach toward policy convergence with the favourable elements of the EU IPPC scheme and adoption of BATs building;

- adopting the EU IPPC scheme and adoption of BATs in the MPCs;
- Croatia is a specific case, given that it has a SCP national action plan, but it is largely not being implemented and the EMAS scheme is still not in place; Croatia needs to change the system of incentives to its industry and focus more on SMEs since they make 99% or registered companies, employ about 65% of all employed and make most of the GDP coming from the production;
- the industrial sector and companies should implement environmental laws with the support of incentives;
- creating equal conditions for all competitors, awarding responsible behaviour, promoting CSR as an opportunity and (long term) competitive advantage, exploring practices of SMEs.

4.3 Industrial areas

Among the capitalized projects, the ones focused on industrial areas are mostly MEID and Ecomark. So we will discuss the subject starting from the outputs of these two projects, going on with an analysis of the stakeholders, the points of strengths and weakness and the policy recommendations emerged by the projects.

4.3.1 Projects output about Industrial Areas

The main outputs developed in the capitalized projects of ECO-SCP-MED to support SCP policy are:

1. MEID model (MEID project): a series of steps to be followed to implement a sustainable management of Mediterranean IAs;

2. MEID Guide for the Construction of Environmentally Sustainable Industrial Buildings (MEID project): it describes a list of 88 measures of good practices applicable to the construction of buildings and industrial sites in Mediterranean IAs throughout all its lifecycle;
3. International Benchmark in Industrial Areas (Ecomark project): benchmarking of 42 EU IAs on the base of: environmental management, logistic and mobility management, research and development, communication and green marketing. The analysis is structured into specific indicators;
4. Innovative service guidelines (Ecomark project): aimed at describing how to develop two innovative services in the fields of the Sustainable Logistics and Third Party Financing Mechanism (TPFM).

The first MEID output is a model for implementing a sustainable industrial area; it takes into account there are many different situations in the Mediterranean area and provides three possible paths, according with the starting point: planning and designing a new IA (industrial Area), model for non structured IAs, model for structured IAs. The most important elements of sustainability the model leads to are:

- an official Managing Company
- a shared processes for a joint Industrial Policy
- the involvement of stakeholders (citizens association, NGOs, syndicates etc.)
- an Environmental Management System of the area (Environmental policy, monitoring plan, improvement plan, communication procedure)
- centralized infrastructure and innovative services
- sustainable industrial buildings.

Concerning the last point, MEID elaborated also a "Guide for the Construction of Environmentally Sustainable Industrial Buildings". The aim of the guide is to present a series of recommendations to the different agents involved in the process of design, construction and maintenance for a specific construction project, to ensure that this is realized under an environmentally sustainable perspective. The guide

describes a list of 88 measures, good practices applicable to the construction of buildings and industrial sites throughout all their lifecycle (covering construction materials, as well as the construction process and issues related to energy consumption and other natural resources that are associated to the use of the building, amongst others).

Talking about Ecomark, the main outputs are a benchmarking analysis and a guideline for innovative services.

The results of the benchmarking propose some interesting conclusions and observations; there are several aspects of the management of the industrial parks which should receive more relevant efforts in terms of plan, investments and tangible and intangible resources. In fact also in the industrial districts that are characterized by a strong and well-established management, it is necessary to enforce specifically the communication and green marketing component and the sustainable logistics management.

For what concerns the communication and green marketing component, the benchmarking analysis and the analysis of the database point out that it would be useful to enforce this management field by arranging specific tools suitable to cover all the functions and the aims of communication and green marketing. In fact the industrial parks in general terms arrange just generic instruments such as the website, the participation to events, promotional materials to promote the attractive resources they are provided of in order to attract businesses and investments. The benchmarking analysis seems to suggest the opportunity of stronger investments in the skills needed to arrange specific instruments for the communication of the environmental performances of the industrial park particularly for what concerns the level of the whole area and not only of the single business.

An analysis of the general situation of the industrial parks included in the database shows that there is not a well-established tool kit for the innovative management of logistics which is still managed through traditional systems such as public lines of transport, with a poor efficiency in economics, environmental and logistic terms. Moreover, by analysing the case studies of the project Ecomark it is evident that the sustainable management of energy is one of the fields industrial areas invest more resources about (particularly for what concerns photovoltaic plans). On the base of this observation, innovative services

for energy management and for the related investments can offer opportunities for the improvement and enhancement of industrial areas and environment.

The second output of the project, the "Innovative service guidelines", goes in the direction traced by the benchmarking and indicates how to develop new and useful services for industrial areas, especially about logistics and financing mechanisms for energy interventions.

> The sustainable logistics service, provided through a broker, can improve the management of cargo, helping to plan the demand and optimizing the transport, reducing the number of travels and distances. Consequently, the energy consumption will be reduced and so the emissions, increasing the respect towards the environment. Besides these advantages, traffic will be reduced, reducing traffic and noise in the area. The expenses associated will be reduced, minimizing the cost of transport and increasing, this way, the competitiveness of the company. The third party financing mechanisms can help the companies and industrial areas to invest in new technologies, more energy efficient equipment, improving the water and waste management and increasing the use of renewable energies. This aspect will raise the environmental respect in the companies, increasing the sustainability of the industrial area. The application of both services can lead the industrial area to increase environmental awareness, also useful for the promotion of the ecopark, attracting industries respectful towards the environment.

4.3.2 Stakeholders

The main stakeholder involved in MEID and Ecomark and interested in IAs policies are:

- Managing Companies of IAs, where present; their role is to define rules, promote services implementation, coordinate the areas, ensure enterprise cooperation and be the main external interface of the IA.

- Firms; the opportunities in term of saving money and time by joining a network and by activating innovative services is an important issue for enterprises, especially in a difficult economic period; moreover, the culture of sustainability and social responsibility is spreading fast in the business world.
- Trade associations; they support and promote innovative services implementation for improving a sustainable management and competitiveness of industrial areas.
- Local authorities; they act as facilitators for the sustainable objectives of the IAs and for applying SCP policies by administrative and regulation relief, than with financial incentives.
- Logistics operators; they support logistics activities for enhancing the distribution of products with costs, emissions and time decrease; they plan demand and optimize transport.
- Universities and research centres; they have the mission of providing objective findings and useful outcomes based on research and scientific knowledge.

MEID and Ecomark projects does not really involve the citizens side, but they outline several times that an ecological IA can be competitive not only with the efficiency and the innovation of the services provided, but also with the preference given by the sensitive consumer. This happens only with a good external communication and the tools of green marketing. The projects, in order to involve the local communities, organized forum, observatories and conferences, presenting their work and the outputs.

4.3.3 Obstacles and barriers, points of strengths and opportunities

A common and widespread problem is the lack of incentives to support SMEs to initiate the path towards resource productivity and to support the adoption of SCP policy. Usually, if provided, the environmental incentives concern only the theme of energy consumption, efficiency and renewables and do not cover other environmental themes. The implementation of incentives, not only of economic nature, but also as administrative simplification strategies, should support the enterprise's performances.

There is also a common lack of integration of environmental and research policies in business activities and a general lack of knowledge on how to spread SCP approach among enterprises and Local Authorities. In Italy, in particular, this is the case of GPP procedures: the general lack of technical support to enterprises and Local Authorities by the Italian Ministry for the Environment produces a consequential effort and difficulty to define and apply suitable environmental criteria for public tenders.

The lack of incentives, and more in general of opportunities, is a strong barrier for IAs managers of the MED regions willing to undertake the path towards sustainable IAs. Also in this case administrative and regulation relief are a strong tool in the hand of Local Authorities which want to act as facilitators for SCP policy adoption.

At European level there is a great lack of integration among different policies, such as among research policies and territorial cooperation ones. Thus, the European projects should face these issues favoring the integration among research, innovation and business.

SCP policies dedicated to IAs have some points of strength that can act on the competitiveness of the enterprises and the sustainability of territories. In specific:

- collaboration among enterprises supporting networks to increase their own innovation skills and their competitiveness on the market, exchanging information or industrial, commercial or technological services and experiencing activities and to take advantage of the synergies among the worlds of constructions, companies, research, centers of excellence to create an area of excellence connected to the infrastructure, construction and green mobility fields;
- SCP activities, linked to the company's economic interests to enhance its attractiveness and profitability, should bring economic benefits, also applied for territory;
- the involvement of Local Authorities that should act as facilitators for the sustainable objectives of the IAs and SCP policy by administrative and regulation relief, rather than by financial incentives that still remain important. They should support enterprise networks which increase the SMEs possibilities to compete on international markets;

- the opportunity to take long-term decisions regarding environmental issues and sustainable development;
- the improvement of infrastructures and innovative services in IAs to help enterprises to face the increasing challenges of the European legislation and to approach the Green Economy;
- the experimentation of EMAS APO ("Ambito Produttivo Omogeneo", Homogeneous Production Areas) Regulation to promote the environmental improvement at territorial level; it introduces also simplifications for enterprises which can use synergistically the EMAS APO path to register themselves to EMAS scheme;
- the development of a Regional Industrial Policy Strategy should represent one of the main ways to recover the competitiveness of a regional economy, also in terms of SCP development;
- regional Action Plan for sustainability of public consumption should support the spread of SCP approach.

4.3.4 Policy recommendations

Ecomark and MEID provided some useful policy recommendations regarding IAs and the improvement of their sustainability:

- Stimulating the settlement of unitary management of IAs. Managing Company with a recognized legal form, is fundamental to guarantee cohesion among companies, provide a unique interface with the Local Authorities and the territory stakeholders, and for the perception of the Area as a whole.
- Supporting enterprise networks which increase the SMEs possibilities to compete on international markets. At this aim, collaboration among IA enterprises, Local Authorities and Territory/Local community is very important. Indeed, only a shared industrial policy, where all the stakeholders of the Area, including the local population, are involved in the main decisions, will allow to foster a climate of cooperation and to accomplish the set objectives.
- Innovative financing instruments should support SMEs and SCP policy development; more generally financial framework should be improved, strengthening access to capital for SMEs.
- IAs should provide innovative services and improved infrastruc-

tures, to help SMEs to better their performances and become more competitive in the European market.

- A sustainable and integrated approach to logistics activities and energy management should be guaranteed inside IAs, as a specific attention to the whole manufacturing processes and supply chains, in order to control the size of enterprises carbon footprint and recycle.
- Local Authorities can act as facilitators for the sustainable objectives of the Industrial Areas by a careful examination of needs and consequently an accurate IA policy with appropriate incentives, administrative facilitations and regulation relief. At European level it is highly recommended an harmonization of standards and norms, looking at the best available practices.
- The lack of knowledge on SCP policy among enterprises and Local Authorities has been identified as a major problem: there is a need to develop training programs and support tools and provide technical support to businesses and Local Authorities. Also an improvement in cooperation among research centers, SMEs and local bodies could help bridging the gap between theoretical research and territorial needs.
- Pilot actions should be funded in order to practically apply SCP in different contexts, test and solve the problems, show the benefit for enterprises and environment and encourage the spreading of positive experiences.

Chapter 5

Taking experts on their word: the results from the interviews

Besides of the long and accurate internal work on projects to be capitalised, partners of ECO-SCP-MED have been requested to take further information and viewpoints from outside experts with respect to SCP. The respondent have been more than 20, coming from institutions, industry and civil society (see Annex 2). The synthesis of their impressions on the issue is the following[1].

5.1 SCP Policies: an attempt to define them

Experts share the opinion that SCP policies are characterized by complexity and integration of both sides of the market, and that they are directed to improve the quality of life of current and future generations.

> Because of the integrated use of different kinds of instruments and tools, from EU directives to municipalities acts, not even easy to grade in a rank of relevance, a definition of SCP policy is not simple. We can define it as the set of normative, financing or restriction activities directly influencing consumers' choice or firms' production. [PaF]

[1] The code into squared brackets at the end of each italics identifies the respondent. To associate the code to the person, see Annex 2.

> Policies for SCP focus on the improvement of the overall environmental performance of products throughout their life-cycle, to reinforce products coming from recycled materials, to boost the demand for better products and production technologies and to help consumers in making informed choices. [EfT]
> SCP is the use of goods and services that respond to basic needs and bring a better qualify of life, while minimizing the use of natural resources and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations. SCP maximise business' potential to transform environmental challenges into economic opportunities and provide a better deal for consumers. We can say that their aim is to do more with less. [RoV]
> SCP policies are the "one way only" to development and to the environmental safeguard of industrialized economies. The lack of these policies does not guarantee the future. [AdS]

According to experts' visions, SCP policies are concentrated mainly on two aspects: on a "vertical" basis, the shifting from an ex-post to an ex-ante-ongoing strategy; on an "horizontal" one, the effort in communication, information, and knowledge transfer.

> In recent years, the implementation of SCP has demonstrated a shift towards integrated product policies and system approach to sustainability. The policy has evolved from end-of-pipe approaches such as pollution control, through cleaner production initiatives mainly based on C&C, to considering the entire supply chain and life cycle of products. Life cycle thinking is used also to define policies that can help to address the root causes of unsustainable production and consumption by taking a holistic broader view on the issues and avoiding burden shifting. This means considering the effects of an action through all stages where possible side effects may happen. [BuT]
> Policies for SCP aim to act as much on supply as on demand by bringing together producers and consum-

> ers, to reduce the environmental impact of production and consumption of goods and services on the climate, on resources, and more generally on the quality of life and well being of present and future generations. SCP policies cover a number of operations such as product labelling, Eco tax, Corporate Social Responsibility, incentives to recycle and reuse products, encouragement for eco-design. [MoC]
> SCP should involve all stakeholders, starting from the design, production, distribution and marketing, and all those intermediary organisations that nourish them. In production, exemplary actions for SMEs should be promoted oriented to the application of different tools of sustainable production, while horizontal actions should be performed in order to promote knowledge transfer among sectors of products' value chains. In consumption, both environmental education and awareness are the basis for changing the productive model. [RaM]

Besides of acting on both sides of the market, SCP policies are even multi-level strategies that involve institutions, organizations and citizens from the European to the local level.

> SCP policies identify rules and criteria, and share strategies at the European level to design, develop and communicate to the market the existence and the consumption opportunities of sustainable products [CiG]
> SCP must be well integrated into the framework of local operations such as local Agenda 21 or territorial climate plans. [MoC]

Notwithstanding a clear identification at the theoretical level, SCP policies show critical when implemented.

> Policies actually adopted are not clear and understandable, they are very theoretical but impractical. In facts, they are often very complicated and difficult to apply. The aims are right but the methods and timing of implementation will not allow to get the goal you set. [SeL]

> The policies in force sometimes seem too complex and sparse. Developers and companies see them as a constraint which means they are not always applied. [AuR]
> SCP are too blurry, poorly focused on production excellences. [MaP]
> The SCP polices are a set of strategies and tools to favour the development and the spread of green products on the market, acting on manufacturers and consumers. The definition on SCP policies of COM(2008) 397 on the Sustainable Consumption and Production and Sustainable Industrial Policy Action Plan is anyway suitable; the challenge is the application of these concepts to the market. [PaB]

5.2 The state of the art of SCP

As a consequence of the last remark, the state of the art in SCP policies implementation is quite blurry and not completely satisfactory. On the consumption side, the main problems are related to insufficient degrees of information and awareness.

> At consumer level, there is a great lack of information. The benefits of the acquisition of eco-labelled products are unknown. In addition, only in a few cases the Public sector, which can mobilise the market through public procurement, from a focused-on-price market to a market in which both the price and the environmental performance are awarded, recognises its benefits. [RaM]
> It does exist at all levels a higher awareness and critical consumption about the quality of the product compared with few years ago. People pay more attention to what they buy but there is not a strong determination to make defined choices by the consumer, yet. [SeL]
> They does not benefit from enough visibility and promotion. [MoC]

Another weakness is due to the poor public performance in enforcing and stimulating SCP.

> National policies usually adopt the European directives without proceeding further in more specific measures. What is really missing is an integrated approach for sustainable product taking into account cost-benefit analysis of several sector approaches, like energy efficiency, raw materials as products of recycling, environmental performance and environmental management and all these combined in a life-cycle analysis. [EfT]
> Both at national and local/regional level, the SCP polices should be improved. There is general lack of technical support for enterprise and Local Authorities for their implementation. The GPP criteria are non-binding for Local Authorities and no financial incentives are foreseen for firms to adopt GPP criteria and to produce more eco-friendly goods and services. There is also a common lack of integration of environmental and research policies in business activities. When provided, the environmental issue concerns only the theme of energy consumptions and efficiency, and not all the environmental improvement for firms. [PaB]
> Their implementation collides with an oppressive bureaucracy. This is the main reason why the process is so slow [ReG]

In this sense, national authorities are referred to as the first responsible for slowness in SCP implementation.

> At the National level, we miss a global strategy before to take care of detailed issues, mainly with respect to Energy policy. [CoS]
> There are several initiatives from single local authorities with positive results, but the national capacity lacks. There is no ability in capitalising local experiences. For instance, GPP show a high performance at the regional level, but national minimum requirements have not been defined yet. [AdS]

Besides of public deficiencies, another relevant reason for the unsatisfactory state of SCP is the economical crisis, that affects both house-

holds' consumption patterns and public capability to implement counter-cycle policies, even on sustainability issues.

> SCP policies have been discouraged by public budget restrictions, with few care of sustainability. In this way, investments capacity is reduced and c&c policies are the only possible one, but their results are limited. [PaF]
> In addition, the crisis of recent years has caused a slowdown in this process. [SeL]

As a consequence, even though the engine is running and the system is in motion, the final goal of a sound SCP policies' implementation is still far.

> SCP are at the early stage. Steps are being taken, mainly due to EU's pushes, but there is still a long way to go. [DiD]
> Much is being done but it will take a long time to achieve concrete results. [ReG]
> The goal is still far from being achieved. [SeL]

5.3 Instruments and tools for SCP policies implementation

The observed emphasis on the integration issue with respect to SCP policies (see Section 5.2.1) has a direct influence on the usage of instruments and tools to implement them.

> Single policy instrument approach is not sufficient to tackle SCP policy objectives. An effective policy context can be more powerful through a combination of various instruments that target different obstacles, even though interacting instruments can also overlap and give conflicting signals, which can be counterproductive. Well-designed policy mixes should strive to maximize the synergies and effectiveness between instruments. Such policy packages can target both supply and demand side of the market, as SCP instruments that simulta-

> neously push phasing out unsustainable practices (e.g. ban of hazardous substances), promote more efficient approaches (VAT reduction, environmental subsidies) and expand the market for more sustainable solutions through guiding consumer choices or creating a demand (product information tools, sustainable public procurement). [BuT]
> We need a bulk of instruments: fiscal policies, orientating fiscal incentives towards actions involving the most sustainable products production (mainly tax deductions that support products with a lower environmental impact than the average); environmental management system development at organisation level and eco-design at product level; design and development of tools aimed to interrelate some of them, in a horizontal way; support to information and environmental education campaigns. [RaM]

The most requested are market tools, claimed to affect both sides of the market, rather than regulations. They are mainly in the form of awareness campaign and creation of purchasing groups with respect to consumers, and of certification and other instruments to give market visibility to firms and products.

> The challenge is to improve the overall environmental performance of products throughout their life-cycle, to boost the demand for better products and production technologies and to help consumers in making informed choices. [RoV]
> Raise awareness to encourage consumers to become "consum-actors". Provide information about product life cycles. Encourage companies to innovate towards sustainable production and to organize themselves (CSR, EMAS) Promote and encourage the use of information and labels Incite the development of environmentally responsible purchasing procedures. [MoC]
> Certification policies and the creation of purchasing groups could be strong tools. [ReG]
> Certification policies and consumers' initiatives have

> some more weight as they have a direct influence on consumer habits. [DiD]
> We consider strategic the buying groups. [DoB]
> Certification policies increase the visibility of the companies engaging in sustainable production/consumption. This promotes the link between procurement and businesses. Business parks can themselves serve as an experimental zone to encourage a large number of companies in the same area to take part in sustainable production/consumption. The proximity between businesses also encourages pooling and sharing of experiences. [AuR]
> Rules to support changes in the production process, communication campaigns and control of the type of communication [MaP]
> Policies to foster the adoption of Environmental Management Systems among enterprises are very important [PaB]

But the most mentioned instrument is undoubtedly the Green Public Procurement:

> The most important SCP tool is GPP. The public administration has a range of around the 50% of GPP in Italy. Purchasing groups can contribute, but they are based too much on individual actions. [AdS]
> If we consider the public sector, the most important tool for implementing SCP policies is the green public procurement. [DoB]
> Public procurement with the inclusion of environmental criteria is one of the most powerful tools available to implement such policies. [SeL]
> GPP is a significant policy tool to adopt and integrate the SCP policies. A monitoring process on its implementation among Local Authorities should be established in order to track the effective implementation of the NAP criteria and to define possible support and training actions. [PaB]
> Most effective instruments are the ones that give a rewarding to sustainable goods and services, as GPP; it is important to underline the environmental added value,

> since this perception is still missing among consumers. [CoS]
> Public procurement is obviously a priority, firstly to set an example, and secondly because it represents an important part of the economy. Public procurement can work as a lever to create responsible companies. [AuR]

But among all those opinions, even a partially critical voice is present.

> GPP is important, but not so sharp at industrial level. It would be necessary to involve private sectors, as well, fostering the regulation process through the implementation of tools such as Organization Environmental Footprint and Product Environmental Footprint, flanking the well known Ecolabel. [GiG]

Finally, some interesting caveats on the role of local bodies as a relevant actor to enforce policies, instruments and tools for the benefit of SCP.

> We should not underestimate the regulations at the municipal level either. They represent the true expression of territorial policies [ReG]
> Tools are all important, related to their efficiency. I perceive relevant results and tangible impact from sustainable local policies, because of their effectiveness could be directly evaluated. A sustainability policy could be also an operative urban plan that regulates spatial use. I identify this normative act as direct-impact policy. [PaF]

5.4 Main obstacles and barriers for SCP mainstreaming

Many obstacles, interrelated in many ways, represent nowadays a barrier to the implementation and the mainstreaming of SCP. They take form of habits and behaviours, of lack of information and awareness, of financial issues, and of policy coordination and bureaucracy.

Habits are both of households and public sector: changing consumption patterns or purchasing behaviours for environmental orient-

ed brand new ones, needs a stronger than imaginable committing to do it, since it means in many cases a perceivable shift in daily routines.

> Barriers for citizens or consumers are very much linked to behaviour shift challenges [BuT]
> The main obstacle is the resistance to give up old habitudes. SCP tools and values require sense of community, but sometimes it lacks, mainly in the Mediterranean area, and this is a relevant barrier. [AdS]
> Reluctance to change procurement practices. Purchasing practices of large food stores that for economic reasons promote imported products with a high carbon footprint compared to quality local production which encourages consumers to make less responsible purchases. Small producers' markets in city centres, which promote local seasonal produce and strong social ties, are being phased out. Standards which hinder the reuse and recycling of certain materials. [MoC]
> Behavioural barriers as well as culturally engrained consumption routines. The prevailing economic paradigm of growth often implies increasing levels of material consumption. Many business models aim to sell more physical products rather than services, loans or repairs, necessitating increasing material resource use. Culturally "normal" levels of consumption are rising, facilitated by a marketing industry that creates "needs" and desires for an increasing range of goods. [RoV]

It is a cultural and a lack of awareness matter, that claims for a better circulation of information and an effort in education.

> It is necessary to educate consumers for them to know the environmental value of products and the efforts made by producers to put those products on the market. The lack of information makes consumer suspicious, thinking that products will be of a lower quality. [RaM]
> Main obstacles are given by the absence of communication and divulgation [GiG]

The picture is even more complicated due to some unfair practice by producers.

> The difficulty in making people understand the real utility of these tools. People have been teased for too long, they do not trust. The change and the spread of certain policies are often interpreted as another business opportunity to enrich a few minority at the expense of the entire population. People do not perceive the goodness of some initiatives. [ReG]
> Green washing weakens awareness and adds confusion [MaP]

Producers that in some cases are equally prone to unawareness as consumers and public sector.

> The main obstacle is the lack of information given to companies about moving towards sustainable production/consumption, and especially about the potential benefits of such a move. The current context amplifies the fact that companies daren't risk taking this new step. [AuR]
> There is a general lack of knowledge among enterprises and Local Authorities. Consequently, is it difficult to define suitable environmental criteria for public tender procedures. [PaB]

The lack of information on SCP policies' benefits acts together with the (at least) initial higher costs in implementing them.

> The so-called "ecological products" are usually more expensive. [EnP]
> In general, the problem is the lack of integration of economic and environmental aspects. The general crisis has accentuated the importance of the economic features with respect to others. [SeL]
> Because of economical recession time, the price item, often higher for green products and services, plays a relevant role. [CoS]

> The economic crisis changes mass-purchasing patterns, reducing customers' loyalty. [MaP]

But the financial issue affects even through budget constraint problems and introduces some doubts about the real economic efficiency of SCP.

> The main obstacles to SCP policies are budget restrictions and their limited effectiveness for influencing behaviours. [PaF]
> The main obstacle is the lack of funding to obtain credit for products which, initially, are more expensive, so enterprises have to make an initial investment to offer these products at competitive prices on markets. [RaM]
> Value added of SCP approach or SCP policy instruments is not crystal clear: what would be the benefits for the industry in terms of cost savings, for the citizens in terms of enhancing well-being, for the local economy in terms of creation of jobs? Other barriers are in place on the unclear business. [BuT]

Finally, problems of policies coordination cannot be omitted, both among different parts of public administration and between public and private sectors, a topic that involves the problem of bureaucracy.

> There is no coordination nor collaboration between Ministries. [BuT]
> One of the main problem is that the various initiatives are not coordinated with each other and they are not supported by a collective consciousness that can help them to spread. [SeL]
> Those policies needs a higher synthesis and coordination at the European level; to many contrasting indications and directives exist, we need more similar viewpoints among stakeholders [CoS]
> Public bodies that develop strategies are not in contact with private sector. [EfT]
> Another big impediment is bureaucracy [CoS].
> The labyrinthine Public Administration, clientelist poli-

> cies, the lack of transparency and of Government funding instruments. [DiD]
> This is the same case of environmental certifications, progressive more complicated, such as ISO 14000; entrepreneurs subscribe them as formal fulfilment but they are unanimous in saying that they lead to no relevant results in term of sustainability. [PaF]

5.5 Points of strength to support SCP

In the previous section some doubts about the real benefits related to SCP arose. Many experts do not agree with this opinion, thinking on the contrary that SCP are an economic opportunity to be exploited by market-oriented firms.

> One of the strengths of SCP is the economic benefit it brings. Often mistakenly seen as an environmental approach, sustainable consumption and production must be linked to the companies' economic interests to enhance its attractiveness and profitability. The same arguments apply for a territory. A business park that adopts SCP becomes more attractive. [AuR]
> Sustainable development and maximizing the potential of businesses in order to transform environmental challenges into economic opportunities while guaranteeing a better deal for consumers [DiD]
> A reinforcement aspect is to select companies and products of reference, use a word of mouth and a bandwagon effect. If an important company does it, other firms think it is something good, and will imitate. [EnP]

Apart from some repetition of the best tools and instruments for SCP implementation, a replication of conceptions illustrated in Section 5.2.3, other claimed points of strength refer to increasing awareness (even of catastrophic risks that current economic patterns could cause), local and civil society activities and capacity building.

> Awareness and social importance for community are the main elements for supporting SCP tools. Sustainability should become an accepted social value. The driver should be the education and social cohesion on certain objectives non-negotiable and non-negligible. [PaF]
> The environmental awareness is spreading day by day, more and more. In addition, an element that can create added value on the SCP concept is the consideration that, the adoption of SCP tools has a positive effect on the reduction of the use of strategic resources that have limited availability. [DoB]
> A point of strength could be the environment state-of-art such as meteorological events and the increase of environmental awareness, even though still insufficient. [AdS]
> Often choices are made at the local level make the difference, because based on real issues. The effort made by local actors should be further supported by higher levels through laws and programmes. [SeL]
> Local realities represent a solid basis on which to rely. Also civil society pervading committees or associations can contribute to the success of the SCP policies. [ReG]
> Capacity building on SCP policy instruments, attaining skills for multi-stakeholder engagement, political leadership, right entry point at the national level [BuT]

5.6 The incentives issue

Another relevant subject is the opinion on incentives. As we have seen, the economic theory argues that different SCP policies and instruments entail different outcomes in terms of efficiency, effectiveness, and pro-activity (Section 1.2.2).

Among those instruments, a peculiar position is taken by subsidization (i.e. monetary incentives to implement a SCP policy), strictly criticized by many theorists because of their regressive results on both tension to innovation by firms and global externality produced.

Some of the experts involved in ECO-SCP-MED agree with this theoretical approach.

> Incentives are not a policy to be pursued by firms, it should be convenient for them to adopt a SCP policy. They should not be given money but the benefits should be in regulatory and taxation. I am totally divergent to direct funding, because often they are not carried out any longer when initiatives are exhausted. [SeL]
> I'm unfavourable to incentives. An industrial policy in the US style, where public sector leaves room to lassez faire, would be better in this case: a precise normative, a lower taxation and tax relief on job creation, and SCP performance would rise up. [CoS]
> Companies and organisations could improve their performance under their Corporate Social Responsibility or environmental management schemes like EMAS. Public Bodies could provide some incentives like reduction of taxes or under Voluntary Agreements [EfT]

Many others, on the other hand, think that incentives can be introduced, but in modalities designed to award target organizations and to reach exact objectives.

> A specific incentive policy can be thought for those organisation committed to eco-labelled production; for example, corporate tax relief to firms hiring workers directly related to eco-labelled production, or to enterprises which carry on awareness campaigns for sustainable products. All of this should be part of the policy of social responsibility of the company, which should be stimulated. [RaM]
> A little incentive is not bad but should go to the "pioneers", the one who opens the way, trying and failing many times. However, giving annual routine incentives, generates two kinds of companies: the conscious and the non-conscious. In some cases companies accept incentives because they do not require any investment, but afterward they forgot about it. We are interested in conscious companies that can be used as an example. Also, incentive taxes would be good, for example reducing taxes from more environmentally friendly products in

> order to make these product more competitive. [JoM]
> Incentive should be focused on areas of wide strategic impact. Specific incentives should also be allocated to excellent cases. [DoB]
> They must be subject to environmental performance targets [GiG]
> Incentives could be a SCP tool for enterprises for improving their performances, but it is not necessary to increase them. Incentives have to focus better on realizable and measurable objectives. Sometimes incentives could get off deviant behaviour such as free riding. [PaF]

But for the majority of consulted experts and practitioners, incentives are a good response to the problem of how to spread the recourse to SCP policies.

> The development of positive incentives (bonus, reduction of charges) rather than penalties (taxes, extra charges) would reward good initiatives and avoid the feeling of additional constraints. [AuR]
> Support from public bodies is needed for companies to develop sustainable means of production and to promote their products and improvement measures. [MoC]
> Incentives must be given both in private and public sectors. These incentives could be financial, either directly or indirectly. [DiD]
> They ought to be given By the national and European sources [JaP].
> Incentives for enterprises could support SCP development.
> It would be an important recognition. Often the ideas are not lacking, but there is no money to support and implement them. [ReG]
> They are essential. Incentives for energy production from renewable sources allowed a tangible development. [AdS]
> They are still necessary, since the market is not ready to chose consciously [MaP]

5.7 The role of the European Union

SCP are supported by European Union, with strategic plans such as COM(2008) 397, different kind of policies and projects. According to experts, the role of European Union with respect to SCP is not run out yet, because of both malfunctioning to be mended and new objectives and activities to be drawn.

The first malfunctioning is the lack of consistency and pragmatism.

> EU must work to achieving consistency in plans, policy, and instruments developed by various DGs. [BuT]
> Between the European project implemented and the formulation of related policies there is a disconnection that causes substantial delays in the adoption of appropriate measures. [DoB]
> The EU has an essential role in supporting SCP policies, but this role was recently reduced because of different national interests and economic crisis. An example: the 6th Environment Action Programme explained quantities objectives, but the 7th Environment Action Programme the quantities objectives are lower. The 20-20-20 Objective is one of the relevant initiatives it emerges from the European Strategy; another one is the greenhouse gases reduction of 50% to 2050. [AdS]

The second one is the existing distance among EU, Member States and European citizens.

> The EU must motivate and support the emergence and improvement of national policies towards the production of better products and consumption practice with low environmental impact. [MoC]
> EU role is crucial. It should give guidelines to member states. It should give simple and enforceable messages. The European Union is perceived close, but the main goal should always be to simplify even more so decrease the distance that separates us. [SeL]
> The EU is the main pressure axis for the integration of

> these policies into national legislation. [DiD]

EU must address Member States to new frontiers and trajectories in SCP

> At the moment, EU is the major advocate of awareness and knowledge circulation in SCP. A higher effort could be lavished on R&D and eco-innovation, so as for ecolabelling and tracking of sustainability. [MaP]
> Corporate Social Responsibility represents the business framework for sustainable development. The European Commission should promote it in projects as a basis to encourage business competitiveness towards a more sustainable development. [RaM]
> EU has a key role as legislator and financing capacity. At national level, sometimes there are partial objectives, but the main tools are research and innovative projects. These are drivers for SCP policies. Just the EU could influence consumers and producers behaviour. The Horizon 2020 programme has increased resources for research of 40% thanks to EU. [PaF]

Moreover, EU ought to circulate best practices and information on projects and plans, and to design benchmarking on SCP policies

> The EU, and EU projects in particular, enable experience to be shared among countries in order to identify and retain the best of the policies adopted. In this sense, the EU can act as a real lever. [AuR]
> Capitalisation of results between similar projects is very important. The experience and best practices arising from European Projects should be transferred in decision makers, private sector and stakeholders. Seminars, training, workshops, publicity, awareness campaigns could help in this direction. [EfT]
> Also at European level there is a lack of integration among different policies, such as among research policies and territorial cooperation ones. Thus, the European projects should face these issue favouring the integration

among research, innovation end environmental performances of enterprises. [PaB]
The role of EU is to set up sector SCP benchmarking model and an exchange of good policy practice between member states. This can contribute to more sustainable consumption patterns in EU. [RoV]

5.8 SCP as part of a regional development strategy

All experts agree with the assumption that SCP policies are pivotal to regional sustainable development, from energy to tourism, because of resource savings and job creation that they can generate at the local level.

SCP policies are relevant for a regional development strategy. The most attention is on energy, but other key aspects have a strategic importance. Other initiatives could be the bio production. From the EEPAs viewpoint, the incentives mechanism is complicated, because there are difficulties for implementing shared sustainable management between new and old enterprises. [AdS]
SCP should be considered as an important part of regional development which contributes to socio-economic growth. For example, tourism needs an adequate territorial planning for its sustainability over time to guarantee that new generations can enjoy and make use of environment in the future. [RaM]
Policies for SCP must necessarily be implemented on a regional level, which is already the case, in order to take territorial specificities into account and to contribute towards the socio-economic development of a region. [AuR]
SCP could also contribute in socio-economic development since they can lead to new entrepreneurship possibilities and new job creation [EfT]
The development of Agendas 21 and the Territorial Energy and Climate Plans which take SCP into account in an integrated way and adapted to local specificities seem

> to be the correct level to promote SCP: the new generation of Territorial Energy and Climate Plans should include this systematically. [MoC]
> Definitely, they ought to be. These policies are implemented only by some realities at local level at the moment. The target should be to take these successful experiences and make sure to extend them at a broader level. This goal can only be achieved by policies at a local level. [SeL]
> It's the only way for these policies to be generalized and to act as leverage in country's development. Only when these policies are implemented at the regional, and coordinated at the national level we will achieve the expected results. [DiD]
> Absolutely! The SCP policies have a strategic role in our region's development initiatives. [PaB]
> There is no way without SCP policies, economic recovery will be driven by industry and service industry no longer. It is necessary a requalification of natural heritage not only for tourist value, from green economy to hydro-geological risk. [PaF]

Just one voice partially disagree with the initial statement.

> Not really; it may be just for very typical products or in case of circular economy [MaP]

5.9 Further prospects and the future of SCP policies

So, although obstacles and barriers, an unsatisfactory state of the art, some omissions and misbehaviour, SCP are the future perspective to be pursued for economic development.

> SCP policies will be "conditio sine qua non" in coming future [RoV]
> It is the only option for the social and human development [DoB]
> They are the only way to bring about substantial changes

> in the political and economic development model that is currently implemented in Western societies, and not only. SCP is the basis for sustainable development and the firm and wide application of these policies is a prerequisite for healthy societies. [DiD]
> I'm positive, prospects are good. The process has begun and nobody can stop it. Our task is only to ensure that its diffusion takes place in the shortest possible time. [ReG]
> Things have been improved over last years, but not at the rate that everyone would have expected. The main obstacles beyond the crisis is to get a change of mindset that can not be reached in a short time. I am moderately optimistic about a possible change. [SeL]

But what is the perception about the future of SCP policies? They must evolve toward a higher integration (in both senses of integration among European, national, and regional policies, and of concurrent use of different instruments), and market orientation.

> The law of supply and demand and financial possibilities for enterprises to invest in a cleaner production. Supply and demand will influence the possible investment of companies in cleaner production. Public Administration should play a catalyst role, promoting a supply reaction by demand stimulation, not only based on decrees but with a real GPP strategy and an appropriate integrated territorial policy. Additionally, consumers should be informed and educated. [RaM]
> It would be interesting to be able to benefit from a clear and voluntary policy in favour of SCP on a national and European level. This policy must be accompanied by significant incentives such as calls for projects, bonuses, reduction of charges, to allow this new model of production and consumption to develop. To give a concrete example, the notion of circular economy as applied to territories with industrial ecology should be reinforced within European and national policies and given the means to implement it. [AuR]
> We will see more behavioural tools. We might see other

> ministries as entry points for SCP take-up (e.g. Ministry of Development, Ministry of Industry, Ministry of Consumer Affairs). Hope to see more consistency and coordination among regional, national and local policies (top-down and bottom-up coordination). Move towards market-based solutions, eco-innovation take up by entrepreneurs [BuT]
> We need to integer national SCP strategies and action plans [JaP]
> There is a future for SCP policies arising from the process of sector approaches but also from an integration approach focus on sustainable production of products and sustainable consumption. [EfT]
> SCP will transform in proper promotion and marketing policies [MaP]
> The prospect goes toward the progressive alignment of Mediterranean area to Northern Europe excellence. There is nothing to be invented, we just need to take what happens there and to adapt it to our territory. [CoS]

At last, SCP are considered a focal point for future sustainability throughout the Mediterranean area.

> The future of SCP policies will be positive if the European Commission will put the contents of the 7th Environment Action Programme into practice. [PaB]
> There are many difficulties, but the role of SCP policies is relevant for the future. Several actions have to be done such as EMAS and Environmental Industrial Areas (EIA) implementation. EIA is one of the actions that mainly contributes to a sustainable future. [AdS]
> SCP policies will have an important and enlarged role. For instance the environmental impact assessment, devised for major works and nowadays applied even to plans and normative acts. Although the problem of financial compatibility, every actions will be evaluated taking care of environmental impact. The awareness of SCP choice have been implemented in the policies, but in people's life of everyday, much more has to be done. [PaF]

Chapter 6

Networking SCP: a World Café session on the emerging policies

A first set of SCP policies emerged from the previous steps of the project, each of them related to different sources of information. These policies involved the issues of integration, dissemination and education, the use of incentives, the relation with LCA, GPP, Ecodesign, the implementation of IPPC, the support to eco-innovation.

As a final step, all those issues have been discussed in a dedicated networking activity, implemented through a World Café methodology. In this Chapter we describe the key elements of the activity, leaving to the next and final section the description of the more relevant SCP policies that came out and the recommendation extractable from them.

On the 14th and 15th of May 2014 Province of Bologna organized and hosted a networking activity regarding four different projects (ECO-SCP-MED, MER, Medland and ZEROWASTE PRO) within the MED Capitalization Programme.

The workshop aimed at encouraging concrete opportunities for cooperation in the fields of sustainable consumption and production and at encouraging the cross-fertilization among experiences and methodologies within a European perspective.

The activity has been structured in two workdays: in the first one, open to participation of external audience and stakeholders, it has been held the international workshop "Sustainable Development: products, consumption, promotion and territorial marketing", with both a morning session in form of a conference with key speeches and a sequence of roundtable, and a World Café session focused on ECO-SCP MED in

the afternoon. In the second day, the partners met behind closed doors to follow up the activity, debate on the different issues emerged in the previous days and decide subsequent steps of the four projects.

One of the four roundtable of the 14th May morning session has been devoted to discuss "The support of the EU Strategies and EU Next Programmes in achieving Sustainable Consumption and Production. Interregional cooperation and research & development initiatives", starting from the ECO-SCP-MED project.

Under the coordination of Anne Furphy (IAT Seville), four spokespersons (Raimondi Attilio and Silvia Grandi from Region Emilia Romagna, Nuno Casimiro Vaz Silva from JTS Programme MED, and Magali Outters from Switch MED Programme) debated on the issue, remarking that SCP policies involves the Policy Component, aiming at reinforcing circular economy in the Mediterranean governance framework and mainstreaming SCP in national policies; the green entrepreneurship and civil society, aiming at boosting the creation of green jobs and empowering local grass-root initiatives in the Mediterranean; pilot projects, aiming at supporting SCP policies and achieving national actions on the ground; networks, aiming at facilitating regular exchange among all key stakeholders and harvesting lessons learned from different activities.

The Roundtable ended with the illustration of the main challenges SCP policies in the Mediterranean ought to face, namely the addressing of socio-economic issues, the mainstreaming of SCP into key sectors for the region, the collaboration between National Ministries and Local Administrations, the stakeholders' involvement, and the access to finance.

Then started the working session, developed with the World Café methodology; before to describe the issues and results of the afternoon session it is necessary to illustrate briefly the main characteristics of the World Café technique.

6.1 The World Café methodology

6.1.1 What are café conversations and why they are useful

The World Café is a methodology that is based on the same spirit of coffee break, i.e. creating a work environment that invites participants

to a free conversation. The discussions are self-managed by the participants within a common framework and under the guidance of some reference questions. This methodology creates a living network of collaborative dialogue around questions that matters in service of the real work. It is a dialogue practice that fosters the dissemination and the evolution of participants' ideas influencing each other and feeling them part of a set of people (cross-pollination), an informal communication method that promotes the learning and the sharing of knowledge for opening towards new possibilities of actions. The Café is built on the assumption that people use their creativity to confront even the most difficult challenges.

Given the appropriate context and focus, it is possible to access and use the deeper knowledge about what's important. People sit at a table similar to that of the café, in small groups of discussion to argue all together. Other people are sitting in the neighbouring tables about the same themes. While the discussions, participants are invited to write their ideas and points of view in labels, in hoardings with coloured markers. Once the aim and the amount of time it need to work with are clear, it is possible to decide the appropriate number and length of conversation rounds and the most effective use of questions and the most interesting ways to connect and cross-pollinate ideas. The structure of world café can be summarized in the following way:

- a restricted set of people seated at café-style tables or in conversation clusters;
- progressive (usually three) rounds of conversation of approximately 15-30 minutes each;
- questions or issues that genuinely matter to work or community are engaged in, while other groups explore similar questions at nearby tables;
- people are encouraged, both table hosts and members, to write, doodle and draw key ideas on their tablecloths, label, or on large index cards or placemats in the centre of the group;
- one person remains at the table as the "host" while the others serve as travellers or "ambassadors of meaning" into new conversations rounds; the table host welcomes the new groups and briefly share the main ideas, themes and questions of the initial conversation. The new group is encouraged to link and connect

ideas coming from their previous table conversations and to build on each other's contributions;
- people have the opportunities to move in several rounds of conversation, and ink and connect their ideas At the end of the second round, all of the tables or conversation clusters in the room will be cross-pollinated with insights from prior conversations;
- after the rounds of conversation, a period of sharing discoveries in a whole group conversation. It is in these final meeting-style conversations that patterns can be identified, collective knowledge grows, and possibilities for action emerge.

Given that the café conversation are based on the coffees, the work ambience should not be like an ordinary meeting. If possible, a space with natural light, small tables, colourful tablecloths, hoardings to the wall, beverages and snacks could create an informally and more welcoming atmosphere.

Most Café conversations are based on the principles and format developed by The World Café (www.theworldcafe.com), a growing global movement to support conversations that matter in corporate, government and community settings around the world.

6.1.2 The guiding principles

The world café method is flexible and adaptable to many different circumstances. Creativity, imagination and the guiding principles are the useful ingredients to create the café conversation. The principles of café conversation are:

- **Clarify the Purpose**. It is mostly important knowing the purpose and the aims and clarify them. Starting from these key elements, it would be easier to consider which participants need to be there and what parameters are important to achieve the purpose.
- **Create a Hospitable Space**. The café ambience should be hospitable, one that feels safe and inviting. When people feel comfortable to be themselves, they do their most creative thinking, speaking, and listening. In particular, it is necessary consider how the invitation and the physical set-up contribute to creating a welcoming atmosphere.

- **Explore Questions that Matter**. Finding and framing questions that matter to foster the participants to produce profound results. The Café conversation may only explore a single question, or several questions developed to support a logical progression of discovery throughout several rounds of dialogue.
- **Encourage Everyone's Contribution**. It is important to encourage everyone in the meeting to contribute their ideas and perspectives, while also allowing anyone who wants to participate by simply listening to do so.
- **Connect Diverse Perspectives**. The opportunity to move between tables, meet new people, actively contribute the thinking, and link the essence of the discoveries to ever-widening circles of thought is one of the distinguishing characteristics of the Café. In this way, it is possible to carry key ideas or themes to new tables and exchange perspectives.
- **Listen for Insights and Share Discoveries**. Through the sharing and the listening to themes, patterns and insights, it creates connection to the larger whole. After several rounds of conversation, it is helpful to engage in a whole group conversation. This offers the entire group an opportunity to connect the overall themes or questions that are now present.

The discussion should be guided by powerful reference questions. They should be simple and clear, generate energy, focus inquiry and open new possibilities.

6.1.3 The roles of Café and Table hosts

The Café host should assure that the six guiding principles for dialogue and engagement are put in action. The actions of the café host:

- work with the planning team to identify the purpose of the café conversation and decide who should be invited to the gathering;
- help frame the invitation;
- work with others to create a comfortable café environment;
- welcome the participants and explain the purpose of the gathering;

- pose the question and themes for rounds of conversation and make sure that the question is visible to everyone;
- explain the Café guidelines and Café Etiquette and post them on an overhead, an easel sheet or on cards at each table;
- explain the logistics of the Café, including the role of the Table Host;
- during the conversation, move among the tables, encourage everyone to participate and remind people to note key ideas, doodle and draw;
- let people know in a gentle way when it is time to move and begin a new round of conversation;
- make sure key insights are recorded visually or are gathered and posted if possible.

The Table host is the person who voluntarily remains at the end of the first round and welcomes newcomers to the table. It reminds people at the table to jot down key connections, ideas, discoveries, and deeper questions as they emerge; it remains at the table when others leave and welcome the "ambassadors of ideas" from other tables and briefly share key insights from the prior conversation so others can link and build using ideas from the respective tables.

6.2. The ECO-SCP-MED World Café session

Starting from the classical methodology, we thought and built for our world café a structure in order to respond to our specific necessities.

6.2.1 The structure of the session

The objective was to discuss the three central themes of ECO-SCP-MED project (Production processes, Products and consumption, Industrial areas) with partners and stakeholders of the project, experts and from the public and speakers of the morning session, everyone interested in the world café session, in order to enrich the discussion and identify some key aspects identified by different subjects with respect to role and education.

After the opening session, the world café began. It has been organized in three tables, each one dedicated to one of the themes of interest of ECO-SCP-MED: productive processes, products and consumption, industrial areas. Every table had some people that remained permanently at the table: a chairman, a reporter and some experts. The role of the chairman was to be at the head of the table, facilitating and addressing the discussion. The reporter had the job to take note of what was emerging at the table and then report, at the end of the world café, at the entire assembly. The experts, previously selected and invited at the tables on the basis of their specific skills and experiences, had the job of enriching and stimulating the debate.

Inside each table the role have been played has follows.

Production processes table:

- Chairman: Victor Vazquez (IAT)
- Reporter: Maria Rosa De Giacomo (SSUP)
- Experts: Irene Sabbadini (Ervet), Fabrizia Calda (Impronta Etica), Gaelle Ridolfi (Indica)

Products and consumption table:

- Chairman: Joan Rieradeval (UAB)
- Reporter: Danilo Ceh (Bistra Ptuj)
- Expert: Pier Francesco Campi (Emilia-Romagna Region)

Industrial areas table:

- Chairman: Valeria Stacchini (Province of Bologna)
- Reporter: Mario Tarantini (ENEA)
- Experts: Patrizia Bianconi (Emilia-Romagna Region), Loris Manicardi (Focus Lab), Stefano Ghinoi (University of Modena and Reggio Emilia)

The participants at the world café hade been assembled in three groups. The whole time settled for the world café had been subdivided in three

rounds of half an hour each; at the end of any round, every groups moved from the table where he was to another one, in a rotation that followed this scheme:

	Table 1 Production processes	**Table 2 Products and consumption**	**Table 3 Industrial areas**
Round 1 Weaknesses	group 1	group 2	group 3
Round 2 Stakeholders	group 3	group 1	group 2
Round 3 Tools	group 2	group 3	group 1

Tab. 6.1: The progression of groups in the three tables

Each group took part at any thematic table. In order to focus the attention of the groups on specific questions and to avoid that the discussion were repetitive, at each round was attached a specific focus; so, the first round was about weaknesses, the second was about the stakeholders, the third was about instruments and tools for SCP policies. In this way, during the first round, the group who was at the industrial areas table discussed about the weaknesses of the sustainability policies for industrial areas, while the group at productive processes table talked about the weaknesses of this issue and so on.

At the end of each round, it was asked to the members of the group to write on coloured post the three main elements emerged by the discussion just closed. The post-its were then stuck on a poster and the reporter had the job to draw conclusions by the most significant cues.

6.2.2 Partners, experts and stakeholders involved in the World Café

For what concerns the experts invited at the roundtables, here is a brief description of their experiences and skills.

Marino Cavallo, Coordinator of the projects Mer and Ecomark. He has conducted studies and analysis on spatial and socio-economic development and the relationship between economics and

environmental sustainability. He is head of the unit "Research, Innovation and European project management" of the Province of Bologna.

Anne Furphy, Expert in Sustainable development, business internationalisation and public procurement of innovation, she belongs to the International Department of the IAT since 2010, and she has participated, developed and managed a large number of Environment related projects under different European frameworks (as Framework Programme, CIP and INTERREG), Anne coordinates IAT's participation in ECO-SCP-MED project (and formerly coordinated AGROENVIRONMED project, capitalized under ECO-SCPMED).

Danilo Čeh, 10 years of experience in the management and implementation of national and international projects; preparing and design project ideas and project documentation for international and national calls; animation and informing entrepreneurs, research work on projects; consulting to the stakeholders.

Boštjan Cotič, European Projects manager, researcher. Main activities and responsibilities: Managing project, Financial reporting and managing, WP leader, research and development, organising international conferences. He works for the Urban Planning Institute of the Republic of Slovenia. PhD student at the University of Ljubljana, Faculty of architecture. President of The Town and Spatial Planning.

Eduard Plana, Forest engineer and Msc. in Wilfires management, currently is the head of the Forest Policy and Environmental Governance of the Forest Sciences Centre of Catalonia. He has been working as a forestry consultant in the fields of strategic forest land planning, socio-environmental dimension of forest resources and uses and the integrated management of fire risk. He is the coordinator of the Med Capitalisation project MEDLAND2020 "Design of a future Common integrated land management scheme to protect natural resources in synergy with social and economical valorisation".

Judit Rodriguez, Forest Engineer and postgraduated in Analysis and Intervention socioenvironmental and in Environmental Management in the Company and the Public Administration. Since 2000 works in CTFC, being the former head of the deparment of forest harvesting and bioenergy (2005 to 2010). She has been working on training,

consultancy and development of forest bioenergy projects, and also contributing to technical documents.

Nuno Casimiro Vaz Silva, In the field of European Territorial Co-operation since 2005, currently working with the MED programme Joint Technical Secretariat, as programme development and project officer. Completed a master in "European Policy and Territorial Co-operation" in the Universities of Minho (Portugal) and Vigo (Spain) after a post-graduation in "Natural Hazards and Social Dynamics" at University of Coimbra.

Magali Outters, Working on SCP related topics with the Mediterranean Countries since 2006, developing project, coordinating technical studies and capacity building activities. Actually: Team leader for the EU funded SWITCH-Med Programme at the Regional Activity Centre for Sustainable Consumption and Production of the UNEP/Mediterranean Action Plan); Previously thematic expert on Environmental Management Systems and sustainable production for the Mediterranean Environment Programme of the Horizon 2020 initiative.

Giorgio Osti, Sociologist, associate professor at Department of Political and Social Sciences, University of Trieste, Italy. He is interested on socio-spatial relationships, especially on how reciprocity works in the places. He has been involved in researches concerning local development in fragile areas and environmental issues like waste management and energy transition. Recently he has published The moral basis of a forward society: Relations and forms of localism in Italy (Local Economy, March 1, 2013).

Victor Vazquez, BSc Biology and MSc Engineering and Environmental Management. Auditor for Certification of Environmental and Quality Management Systems at AENOR. Verifier for Environmental Product Declaration at AENOR . Member of the Sector Group Environment in the Enterprise Europe Network. Co-oordinator of the Technological Spanish Platform for Environmental Technologies (PLANETA).

Mario Tarantini, Research Director at the Italian National Agency for New Technology, Energy and Sustainable Economic Development (ENEA). Graduated in Mechanical Engineering, he has worked since 1984 in Energy Systems Department of ENEA and, more recently, in

the Environmental Assessment Technical Unit. He has recently coordinated the project MEID (Mediterranean Eco Industrial Development) and, on behalf of Italian Ministry of Environment, a working group to define environmental criteria for Green Public Procurement of building materials and elements.

Maria Rosa De Giacomo, Ph.D in Management, Research Fellow at Scuola Superiore Sant'Anna. Research experience in international and national projects, as: MED IPPC NET, BAT4MED 7th Framework Contract, ECO SCP MED, Service Contract Supporting The Evaluation Of The Implementation Of The Emas Regulation 1221/2009.

Joan Rieradevall, Professor and researcher at Sostenipra ICTA UAB and Coordinator of Environmental Science Studies. Ph. D., Science, Chemical, MBA and Degree in Environmental Engineering. Many Awards Prize environment nationals and internationals. more tan 90 articles in indexed journal over 140 publications,20 books and chapters in the environmental and eco-innovation issues.

Valeria Stacchini, Architect, since 2006 member of the unit "Research, Innovation and European project management" of the province of Bologna, where is involved in studies and projects on local development and in the construction of tools and instrument for planning and programming. She collaborated with Ferrara Research Consortium, CAmInA Centre, Il Corpo va in città Association, the National Secretariat for Territory, Environment and Agriculture and the Local Agenda 21 of the Republic of San Marino.

Irene Sabbadini, Economist, researcher at Ervet, agency of economic development of the territory of Emilia-Romagna Region. Work focus: green economy and environmental certifications.

Fabrizia Calda, Political science degree, works at Impronta Etica, an association of firms that promote sustainability and ethics inside the business world. She deals with communication, International relations and corporate social responsibility. She worked at the european project LOWaste, focused on prevention and reduction of urban wastes, through the development of a local market for second materials..

Gaelle Ridolfi, Agronomist, works at Indica, where she provides consulting services for companies and public authorities on innovation

strategies for sustainable development projects, environmental governance and environmental management systems, resource efficiency.

Pier Francesco Campi, Expert of environmental communication, works at Emilia-Romagna Region, where he handles the web portal of the Environment Department (ErmesAmbiente) and where he runs the commnication campaign ConsumAbile, dedicated to the responsible consumption and arrived at its third edition.

Patrizia Bianconi, Expert on environmental themes, works at Emilia-Romagna Region. Focus work: policy SCP and environmental certifications. She handles several projects of Cartesio Network.

Loris Manicardi, Graduated on environmental sciences, is consultant at FocusLab. He handles projects of stakeholders engagement, CSR management, green economy and social innovation. Focus Lab organizes since several years the *Green economy festival* of ceramic district of Sassuolo.

Stefano Ghinoi, Economist, researcher at University of Modena and Reggio Emilia, his focus is on technology centres and eco-innovation.

The experts participated to the discussions and helped the Chairmen and the Reporters to sketch out the emerging points form each table to be reported to the whole participating community.

6.3 The emerging key issues

After the café sessions, all the participants with the table hosts and the café hosts shared their discoveries, ideas in a whole group conversation in town meeting-style. In these way, patterns can be identified, the knowledge grows and the possibilities for action can emerge. In every discussion tables in every round, par-

ticipants have written the ideas and the insights in labels attached to hoardings. Their ideas and their visions are the outcomes of the world café.

For each discussion table and every round (weaknesses, stakeholders and tools) we are reporting the ideas with a reflection on three main outcomes they can mostly be considered to enhance the sustainable consumption and production (SCP) policy in the Mediterranean area. Starting from the weakness analysis, the participants talked about the involvement of different stakeholders and actors and the useful tools to enhance and foster the sustainability, in order to improve the competitiveness. For each round, the chair and the reporter - with the support of the facilitator – highlight the three key outcomes starting from the ideas emerged by the participants.

6.3.1 Industrial areas table

The table "Sustainable industrial areas" argued about the possibility to develop a sustainable management of these areas. The participants, talking about the weaknesses, focused on the lack of long term strategy and innovation, and the lack of flexibility in planning.

Other weaknesses are the need of more synergies between industries, negotiation process with all actors and diversify the kinds of stakeholders to involve at different level, a weak management of industrial areas. From the stakeholders point of view, as in the "green production process table", participants talked about the importance of the bottom up approach to involve local communities, farmers, universities, research and academic communities. The recurring tools emerged are pilot projects, plan management, the stability of incentives, databases, resources sharing and green marketing.

SUSTAINABLE INDUSTRIAL AREAS	
ROUND 1: WEAKNESSES	• No flexibility; made for companies; specific production area; • Not unified business model; lack of long term policies; • Gap between industry/industrial areas and green energy; not flexible planning; • Lack of innovation to provide new services to industrial areas; • Lack of long term planning; • Need more flexibility in the planning of industrial areas to facilitate synergies between industries; • Industrial areas don't integrate flexibility in land management; • The costs to rebuild infrastructures … • Short term vision; • No investment in human capital; • European and national law: a lot of constraint; • Lack of negotiation processes with the participation of all actors (only top down processes); • Lack of strong management at area level; • The capacity to understand and develop policy on ecological industrial area by local public administration; • The capacity to relationship with industries. • Involve stakeholder in the planning; • Define different kinds of involvement of stakeholders in relations to the level of benefits of industrial areas; • Innovative and smart demonstrations for local and public administration to implement ecological industrial areas; • Define an upgrading of the green industrial areas focusing on immaterial infrastructures (services); • Lack of regulation tools to manage the areas development (tackling the future needs); • Make the manage of IAs mandatory; • Integrate the IA in its environment; • Not all the firms in industrial areas know environmental elements; • Urban planning and integration; • Analyse real need for a sector, not general; • EIA directives: transferred to national laws don't enable negotiation and integrated approach in spatial planning; • No specific law at the macro level; • Laws don't promote the cooperation between companies of different sectors (intercluster), just cluster; • Lack of supra-municipal management of industrial areas; • Lack of incentives and appropriate financial instruments • Length of proceedings • Entire supply chain.

ROUND 2: STAKEHOLDERS	• Not always the definition of the boundaries in actors and local is clear enough: in any case, clear; • Swot local action plan, decision about green industry; • Prioritisation of legislation, regulation, certification; • Build the eco-industrial area bottom up from the local stakeholder; • Balance the local priorities with the regional ones; • Neighbours, local communities, farmers; • Regional, national, or EU bodies provide incentives; • Universities; • Bottom up approach; • Stakeholders characteristics: corporate responsibility and collaboration; • Do not forget research and academic community: importance of technology transfer and spin-off, • Physical proximity and concentration are relevant • Relevance of the principle of subsidiary among the different levels
ROUND 3: TOOLS	• Rules to oblige PA to by GPP and help industry to reconvert industrial process; • Systemic vision and analysis based on pilot projects; • Explication in local language and adapted to common users; • Plan management of the industrial areas in the during; • Integrate the industrial areas like a territorial element to create more synergies; • Work on pilot themes. Water should be a good example in MED for industrial areas; • Local community, tertiary, providers; • Demonstration project; • Stability of incentives; • Sharing of resources for R&D in the area; • Training on SCP organized by IA manager; • The tools exist in order to foster IA, but often local PA are absent; • A stronger and adapted communication among researcher – PA – IA managers; we need to build a common language; • Incubators; • pilot plants and innovative spin off companies; • Compensation measures for negative impact to help local involvement; solidarity feeling at territory level; • Databases useful for inventors and operators to use/plan the production; • CSR; Green marketing towards the decision makers, direct link/benefit to surrounding territory; • The best incentive is to remove the barriers to complexity

Tab. 6.2: The outcomes from the Sustainable Industrial Areas table (copied from the original poster)

From each round emerged the following three key outcomes:

Round 1 weaknesses:

- Low or nil recognition of IA in SCP policies;
  besides of being an agent that implements day by day environmental policies and that introduce such policies in the activity of private companies, mainly SMEs, IA are still misrecognized as a relevant actor for SCP.
- Lack of dynamic approach to support IA;
  even when established, IAs are often "forgotten" by policy makers and local authorities, just as if the effort to give birth to them run out the administration's and policy makers' commitment in supporting them.
- Lack of management of IA;
  once established, most IAs show a weakness in the fact they have neither a public subject nor a private company that take cares of managing it. In this way, the ability of IA in directing and affecting SCP policies.

Round 2 stakeholders:

- Involvement of universities that must adapt their language for a more effective communication;
  there is a need of a higher involvement in the IA issue of university and academic word, to implement research and development in this field; nonetheless, the involvement must take place once that university world simplified its language to better communicate with IAs' and SMEs' world.
- Higher commitment of policy makers;
  related with the second key element of the "weakness" issue, a higher involvement of policy makers and local authorities is required, not only to establish IAs, but even to keep their action lively in time.
- Community partnership;
  finally, it is too often forgotten that a relevant stakeholder for IAs is the local community; having sustainable IAs instead of polluting industrial clusters is a competitive advantage for the territory

as a whole, so that even the local community must be involved in partnership and decisions about the IA.

Round 3 tools:

- pilot projects;
  to demonstrate the feasibility of IAs and the contribution of them to SCP policies, a good tool is identified in pilot projects to be implemented by the same IAs management company or by the firms located in it.
- Stability of incentives;
  another main issue for the correct functioning of IAs is considered not just the availability of incentives, but their continuity and stability trough time; it is remarked that requested incentives are not exclusively given by monetary subsides, but even by other kind of stimula, such as a lower degree on bureaucracy or immaterial rewards.
- Communication;
  the last tool to be activated according to the participants is a communication campaign, to disseminate knowledge on IAs and awareness of the benefits they could entail.

6.3.2 Green production processes table

The table "Green production processes" argued about different strategic points about the production processes. From the participants' ideas emerged different kinds of weaknesses, from the promotion of policies and campaigns to taxes, to the failing communication. Regarding the stakeholders, widespread ideas are the bottom up process and the public-private partnership to address the actions towards common and efficient goals. The stakeholders involvement can facilitate consumer information and "win-win" situation.

About the tools, participants agree on the one hand with the idea of standardization and a common language, and on the other hand with the need of work on education, targeted communication and the development of inventories of BAT.

GREEN PRODUCTION PROCESSES	
ROUND 1: WEAKNESSES	• Low promotion of policies; • Low integration among voluntary SCP tools; • low reconnaissance of EMS and other voluntary SCP tools, need of strengthening them; • SCP doesn't have clear targets: targets in the SCP policies (on waste directive) for 2020 or 2030; • Need for a regional data: transparency and share, some format and template to provide data; • Need to improve communication between EU - national government - local government; • GPP → make national government to really implement it; • Incentives: not only financial → GPP can be part of the solution → effort for the set of common criteria; • Environmental Technical Verification (ETV) scheme at EU level too much expensive for incentives; • Need of tax reduction; • Need of promotion campaign.
ROUND 2: STAKEHOLDERS	• Favour bottom up process → ask the producers what they think or what they can do; • P-P partnership as a good way to put together different stakeholder with a common goal ("win-win" process); • Public-private partnership successful at local level, sharing of skills, resources..; • More information to consumers to choose between sustainable products or no; • Create industry-research-public network to improve cooperation; • Same goal, benefits for all, "win-win" situation, sharing information; • Stakeholders involvement for adv. campaign, to implement consumer information, forum on custom policy; • Incentives and grants to stimulate the participation; • Policy maker is the key stakeholder to make some SCP rules mandatory; • Develop ecology industry model; • Collaboration has benefits for all, facilitate the participation of citizens → networking, interchange.

ROUND 3: TOOLS	• Tool = industrial ecology; • build a common language; • LCC: life cycle costing; • New indicators; • Standardization/certification of green processes; • Combination of instrument (economic/financial), work on education and voluntary behaviour; • Eco-services; • Targeted communication; • Development of inventories of BAT for different products; • Tax system and public incentives.

Tab. 6.3: The outcomes from the Green Production Processes table (copied from the original poster)

The three key outcomes emerged from each round are:

Round 1 weaknesses:

- low integration among voluntary tools and law requirements;
  voluntary tools can be very effective in the implementation of SCP policies, in some cases even more than norms and regulations. Nevertheless, they are often neglected by law requirements.
- Lack of local data;
  to have a better implementation of green production processes, we would need a whole set of data at the lowest territorial level, to convince the entrepreneurial word of the benefits they generate.
- Insufficient implementation of GPP as incentive;
  the delay in the implementation of GPP at the Mediterranean level is considered a weakness element even for the adoption of green processes, since a higher diffusion of GPP would surely support the request of firms for green processes.

Round 2 stakeholders:

- Open set of stakeholder;
  green productions need a bottom up approach to develop proper targets and continuous networking activity, to share experiences and best practices among members of different kinds of communities.

- Public-private partnership;
  the involvement of public and private actors and their merge in partnerships that can carry on the perspective of both categories is a relevant key point for the effectiveness of SCP and of green processes.
- Involvement of citizens;
  green processes are not a matter to be handled just by public decision-makers or by firms; since they affect the life of common people, it is rightful to open the decision process even to citizenships and local communities.

Round 3 tools:

- combination of instruments;
  directly related with the first key point on weakness, green processes would surely benefit from the simultaneous and integrated implementation of voluntary and mandatory tools.
- Mixing of economic and environmental assessment;
  in the same way, it is relevant using both the economic and the environmental perspective to deal with green processes, mixing together the two kind of assessment to get the higher information.
- Targeted communication and different tools for it;
  communication is considered a main activity for the best working of green processes, and the wider appreciation of them.

6.3.3 Green products and consumption

The table "Green products and green consumption" argued about the improvement of green consumption. This table highlighted weaknesses in the lack of green criteria for GPP and underlined the need of link better the rationality with the green economy, mainstream outcomes from pilot projects into policy measures and the evaluation of material by producers for consumers. In the participants' opinions is relevant the strategic role of stakeholders to promote green products to consumers, the sharing of eco-communication and projects. Participants reflected also different level of stakeholders, if everybody is a stakeholder. In this roundtable a common issue have been identified in the bottom up approach. About the tools, the added value is represented by the marketing

and participants also underlined the need of linking producers and costumers and increasing the awareness about sustainable products.

GREEN PRODUCTS AND GREEN CONSUMPTION	
ROUND 1: WEAKNESSES	• Prioritarization of green marketing activities; • Material is not valued by producers for consumers; • Gdp in mainstreaming outcomes (from pilot projects) into policy measures; • EU policies and citizens behaviour focuses on global competitiveness; • The need of link better with the rationality of the green economy; • Lack of green criteria for GPP and buying "smart" on behalf of the public sector; • Promote the green products market through GPP; • Green product awareness.
ROUND 2: STAKEHOLDERS	• Awareness about the importance of the green; • Strategic role of stakeholders to promote green products to consumers; • Sharing eco-communication (es. Eu roundtable on envi-food); • Different levels of stakeholders (it is everybody a stakeholder?); • Share the projects (less money to spend, more clearness for people); • Trust among citizens and producers; • Clear information on green products; • Participation processes vs stakeholder participation, bottom up at local level; • Umbrella body: policy harmonization especially among key national government bodies.
ROUND 3: TOOLS	• Change to product service systems (servicing); • Extend the guaranty of products so that they can endure longer; • Added value: marketing of the green production; • Drive customers to pay the added values; • Bring back to producer to products; • In label of products on shelf insert a text dedicated to inform on "health" cost saving or environmental cost avoided; • Establish a European day for "open factories" for visit open to consumer; • Tools = industrial ecology which counts flows of matters of energy (not only their financial value); • Specific tools should be adopted to the different goods.

Tab. 6.4: The outcomes from the Green Products and Green Consumption table (copied from the original poster)

The three key outcomes for each round have been:

Round 1 weaknesses:

- proper definition of "green product";
  it is difficult to define exactly a green product, and a sustainable product too. This vagueness is negative, since on one hand it is detrimental to the right implementation of SCP policies, on the other it allows the opportunity for greenwashing and misleading campaigns.
- Higher price of green products;
  because of their higher production costs, many real green products show market prices higher than the conventional substitutes. In time of crisis, this is a weakness element that can affect the ability of green firms to compete on the market.
- Lack of communication inside industrial and legislative process;
  once again, the lack of communication is perceived as a problem even when related to green products issue.

Round 2 stakeholders:

- educational training operators;
  because of the strong orientation to lifelong learning needed for green products, the world of educational training is a relevant stakeholder for them and SCP policies as a whole.
- Educators;
  with the same rationale, the local table identified a specific category of stakeholders in the educators involved in training the other educators.
- Policy makers appointed to harmonization;
  the harmonization of public policy and sector is fundamental for green products success; for this reason, responsible of it at the EU, national and regional level stands out as pertinent stakeholders.

Round 3 tools:

- eco-design;
  eco-design is considered the most relevant tool to address firms to green products, expressly SMEs.

- Green Public Procurement (GPP);
  the second tool to be indicate it has been GPP, i.e. the request for green products from public bodies; because of the high percentage of goods and services' consumption by the public sector, "greening" that percentage would be a strong support to the success of green products.
- Awareness campaign;
  Again and finally, even for green products the emphasis on awareness and communication of their benefits.

6.4 The questionnaire

At the end of the third round of the world café, we asked the participants to fill a questionnaire. It was a list of 21 policies to be implemented to support SCP in Europe as they emerged from the previous work, analysis and studies by the partnership members. The policies are:

1	SCP policies must evolve toward a higher integration (both of European, national, and regional levels, and on use of different instruments);
2	Technical committees should compare and harmonize among competent offices and their reciprocal experiences;
3	It is important to implement a widespread integrated approach for reducing impacts from agribusiness;
4	It ought to be stimulated the settlement of unitary management of Industrial Areas;
5	R&D outputs should be disseminated in the private and public sector
6	It is important to improve cooperation among research centres, SMEs and local bodies, so to bridge the gap between theoretical research and territorial needs
7	More effective social marketing initiative and campaigns on SCP are needed
8	Pilot actions should be funded in order to apply SCP in different contexts, test and solve the problems, show the benefits, and encourage the spreading of positive experiences
9	It is relevant to grant/monitor IPPC permits through the dissemination of BATs
10	Incentives (even non-monetary) should be implemented to award targeted organizations, and reach specific objectives
11	Public grants and incentives might allow the implementation of experimental operations corresponding to a long term strategy
12	We should improve IPPC Directive implementation in the Mediterranean area, even as a reference for regions not yet implementing it

13	It ought to be adopted the EU IPPC scheme through the strengthening of four key measures (BAT guidance, financial incentives, capacity building, improvement of information availability and exchange), for improving and enabling gradual voluntary action
14	Local and national administrations should promote ecodesign processes by applying it into their services as a reference for companies
15	Local and national administrations should stronger promote GPP
16	Local and national administrations should support the application of LCA thinking and ecodesign methodology
17	High quality environmental data must be gathered, in order to help companies, designers, and any professional involved in green products and services to take the best decisions
18	National life cycle inventories and databases must be collected, developed, and harmonized
19	Environmental assessments (carbon footprint) of solid waste management system should be implemented
20	To enhance long-term absorptive capacity of the Mediterranean countries to sustain eco-innovation, investments in the education system must be sustained
21	The creation of a platform to promote the transfer of technologies and best environmental management practices could encourage eco-innovation in companies, particularly in SMEs

Tab. 6.5: The list of SCP policies assessed by the questionnaire

The participants have been requested to express their adhesion to the 21 sentences, filling the blank near to five assessment categories, namely: "totally agree", "partially agree", "neutral", "partially disagree" or "totally disagree". People also had the chance to point out new suggestions on possible policy recommendations. The questionnaire had the purpose to check the consensus around the policy recommendations emerged by the capitalized projects and, if possible, collect new ideas[2].

The handed out questionnaires have been processed separating "insiders" and "outsiders", the first ones being partners and stakeholder of ECO-SCP-MED, while outsiders labels experts and external people. The results are the following:

[2] The total number of handed out questionnaires was 41, the 32% of which made by partners, the 17% by stakeholders of the capitalizing projects, the 24% by experts and the 10% by participants external to the project. In addition, a 17% of respondents decided non to fill the name space, so that they have been classified as "anonymous" questionnaires.

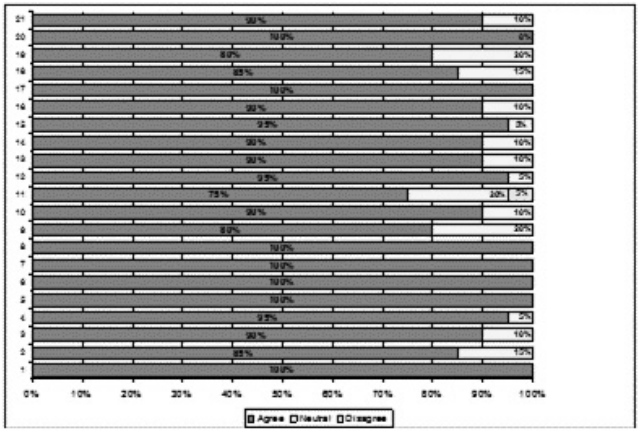


Fig. 6.2: Insiders' percentage of agreement/neutrality/disagreement to emerging SCP policies

It comes out that there is a general agreement on these policy recommendations in both groups, but it is stronger in the group of the insiders; here it is quite non-existent the answer "partially disagree" or "totally disagree". Even if there is an high consensus in the external group too, it is more frequent to find some disagreement.

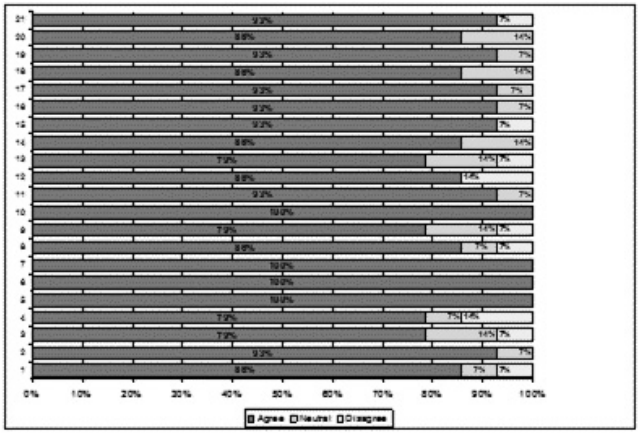


Fig. 6.3: Outsiders' percentage of agreement/neutrality/disagreement to emerging SCP policies

From this quantitative analysis, we obtained the relevant impression that policies emerged from the previous work of interview, policy grid enquire and thematic working group activity are strongly shared and supported by the whole project partnership, so that we can make of them the basis of the joint policy recommendations, final step of the ECO-SCP-MED project.

Nonetheless, the following bulk of interesting new suggestions emerged by the respondents:

Train the trainers as a paramount option for education
Carbon footprint not only for solid waste management, even for transports, agroindustry, etc
Not "Carbon" footprint, but Total material footprint is relevant
A platform to promote the transfer of technologies not only for SMEs
A platform of techno-environmental technologies does exist yet (BAT-BEP), but it is difficult to maintain it
A platform: pay attention to the possible overlapping with other tools and actions
No use in creating platforms; they do not work unless to reach a critical mass and awareness in SMES and consultant
Rather than subsidization, reduction of loans' rate will work better
The main issue on incentives and public grants is about continuity of support and good use of them
The performance of the private sector on SCP must not depend on subsidies
Main issue on incentives and public grants is on the continuity of support and the good use of them
Pay attention to the excess of information
Need to better integrate SCP with university curricula (such as master degrees)
Ecoinnovation should be supported at IA level to overcome dimensional problems of SMEs
Tools such as LCA are not used, and we waste time in it
Non-sense talking of incentives' long-term strategy, since firm decision making is short-medium term
Warning: harmonization can blockade innovation

Tab. 6.7: Open suggestions and comments from the questionnaire

This results and new suggestions have been debated, addressing the final versione of policy recommendations.

Chapter 7

Final remarks and policy recommendations

In this final Chapter we gather and interpret the information deriving from capitalised projects, from working groups on the three specific focus areas (Sustainable consumption and products; Sustainable productive processes; Sustainable management of industrial areas), from interviews to experts, and from the networking activity carried out through the international workshop and the World Café session.

The purpose of this Chapter is to highlight some final remarks on SCP policies emerged during the work, and to address policy recommendation for the future implementation of them in Europe and the Mediterranean area.

Before to proceed in this issue, we analyse the capitalised projects according to the interpretive schemes of political science and economics, to underline trends, trajectories, and common or conflicting positions of them with respect to SCP policies.

7.1 Capitalizing experiences

ECO-SCP-MED concentrates on 11 cooperation projects on sustainability in the Mediterranean area (see Chapter 2.2). The projects range from agriculture and food to energy, from solid waste to pollution control, from industrial areas to biofuels, from ecodesign to eco-innovation, covering as a consequence a huge ambit of SCP policies.

7.1.1 The Projects

The projects aim at the creation of networks, the dissemination of best practices and the definition and use of tools for LCA and ecodesign, with target groups represented in most cases by public authorities and Small Medium Enterprises (SMEs). Screening all the projects through the lens of the policy taxonomy used in Chapter 3, and crossing it with the focus areas the projects refer to, the following picture comes out:

	National/ regional laws	**Plans, and programmes**	**Networks**	**Opinion campaigns**	**Pilot projects**
Products and Consumption	—	—	Zerowaste	Zerowaste	Biofuels 2G Ecodesign Ecotech Sudoe Zerowaste
Production Processes	—	—	MED IPCC NET CSR NET Agro-Enviromed	BAT4MED	BAT4MED Enermed
Industrial areas	—	—	—	—	MEID Ecomark

Tab. 7.1: Positioning of ECO-SCP-MED projects in a space Policies/Focus areas

There is a strong concentration of projects in the upper-right part of the matrix, in correspondence of both *Pilot projects* and *Products and consumption* areas. As a matter of facts, the whole set of capitalised experiences refers to three kind of policies out of five: *Networks and systemic projects*; *Pilots project*, and – in just few cases – *Opinion campaigns*. The two left apart categories are the more generalist ones, namely *National/ regional laws* and *Plans, programmes and strategies*.

This result can not surprise, since capitalised projects are European international cooperation or research projects, quite innovative, good practices' interchange oriented. Having an identifiable positioning in experimental practices, the wishful thinking is that they will be able to affect positively the EU strategies and national/regional legislation in the medium-long run, once experimental time is concluded. In the short run, they act to build up and consolidate networks, to make aware operators

on new opportunities, and to experiment solutions in the field of SCP.

Nonetheless, all these projects are set in a framework of SCP policies and instruments that affects their operations and the outcomes they achieve, as pointed out by the same project referents (see Chapter 3). Rescuing the double taxonomy introduced in Chapter 1, the first according to political science, the second referring to economics, we can position mentioned SCP policies as follows:

	Nat./reg. laws	Plans/ programmes	Networks	Opinion campaigns	Pilot projects
Norms	Slovenian national law GPP Grenelle laws 1-2 (France) Regional law 28/2009 GPP (Emilia-R.) Regional law 7/2007 (Andalusia)	NAP Plan GPP (Italy) National Sustainable Development Strategy (Croatia) NAP SCP 2012-16 Slovenian National Action Plan Energy Efficiency 2008-16 Slovenian National Consumer Program 2006-10 Slovenian Env. Protection Act Energy-Environment Plan of Tuscany Energy Plan of Emilia-Romagna Action Plan for sustainability of consumption in Emilia-Romagna Catalonian Ecodesign Strategy Territorial Climate and Energy Plan (Alpes-Cote d'Azur)			Wind power development areas (ZDE)
Fiscal policies	National law 3851/2010 (Greece)				Ecofunding Life+ Ecoedicion Washable diapers projects Plastic waste (Tuscany)
Contractual policies			Intercent-(Emilia-Romagna)		Green Public Procurement
Voluntary policies			Cartesio Network (Italy) The Covenant of Mayors Interdepartmental commission on Ecodesign (Catalonia) ARPE's network (PACA)	ConsumAbile Andalusia Award for Corporate Excellency	EIP and EEPA Andalusia Environmental Quality Emblem Catalonian Environmental Quality Emblem

Tab. 7.2: Positioning of SCP Policies in a space Political science/Economics taxonomies

We assist to a partial rebalancing with respect to projects, in favour of the upper-left corner (legislation and plans). Considering framework policies instead of specific projects, the attention shifts much more from voluntary to mandatory, and from local to general issues.

Because of their strategic nature, plans and programmes are transversely referable to any class of (economic) policy: all of them substantially set norms or levy taxes, dispose of or directs a financial endowment to fund/incentive projects, give lines to be followed voluntary, and try to stimulate negotiation and other market instruments, in many cases enforcing more than a policy at a time.

Another issue to be pointed out, is that many projects are not too different from the 11 capitalized ones (in two cases of the same nature, being a MED and a LIFE+ projects), gained a so higher relevance to be perceived by respondents as policies: a further confirmation of what claimed in Chapter 1, i.e. that the notion of policy is quite indistinct and includes many different instruments. And also a positive perspective for the future of the eleven projects we capitalize today.

Finally, it is worth noticing that capitalized projects and relative framework policies cover almost the totality of the available policies and instruments, with the partial exclusion of campaigns and social marketing initiatives; this is an issue to be retaken in the final section of this chapter.

7.1.2 The toolkits and the stakeholders

From the 11 projects a set of more than 20 operational tools grouped in three toolkits, one for each focus area tackled by the working groups, have been developed (see Chapter 4).

The toolkits contribute to SCP Policies, integrating and harmonizing the outputs of previous MED program projects. Nevertheless, the tools can be used separately, avoiding to increase the complexity for non-expert users. The toolkits are thought to be a useful powerful appliance in the hand of all the stakeholders involved in SCP.

The stakeholders have been identified and clustered in six categories, called into question according to the considered area.

	Local Authorities	Researchers and consultants	SMEs and other firms	Managing companies of IA	Trade assoc.	Logistics operators
Products and Consumption	X	X	X			
Production Processes	X		X			
Industrial areas			X	X	X	X

Tab. 7.3: ECO-SCP-MED stakeholders per single focus area

Firms (both SME specifically or others kind of companies,) and local authorities are the most involved, but even university researchers and private consultants, companies managing IA, logistic operators and trade associations are claimed to be potentially interested in use them.

This is what emerged from the questionnaires, however, it should be noted the important role that Association should play also for the promotion of SCP in the field of products, consumption and production processes. Similarly, the presence of a qualified management company in the IAs should provide common services and tools for the implementation of SCP, creating economies of scale where individual SMEs do not have the internal resources and expertise.

Logistics is a major component of the supply chain, and transports is its component more environmental impacting, therefore logistics and their operators must be taken into due consideration when applying LCA or carbon footprints.

7.2 Observations, suggestions, policy recommendations

At the end of this insight into SCP policies as emerging from 11 MED Programme projects, we can draw some final observations.

Even though strongly supported by EU and progressively more rooted in local authorities' agenda, the mainstreaming of SCP policies still collides with obstacle and barriers of different kinds.

The improvement of SCP policies about green products and consumption, for instance, meets the lack of incentives and official public financial lines dedicated to the development of green products and sus-

tainable tools. On the other side, the business knowledge and awareness about the existing opportunities and tools is still quite low. Other weaknesses stressed out are about the lack of participation of local communities as active stakeholders, the insufficient involvement of groups of citizens and workers, and the difficulties for SMEs to shift to green productions, even more after the recession.

Regarding the productive processes, once more it is stressed the issue of incentives, since SCP solutions entail long-term strategies and advantages and short-term costs. In the opinion of many experts and stakeholders, policies like CSR and sustainability are still perceived as costly, so that their implementation should be supported. In addition, a general lack of technical support to firms and local authorities creates barriers to the implementation of SCP policies.

With respect to Industrial areas, emerges the need for a common European guidance, harmonization of policies at local level, a push towards a management at area level of innovative services, significant for the attraction of firms, and to support them to compete on international markets. Policy makers should play a pivotal role, however it also important the involvement of the research world, and the dialogue with the neighbours. To make this possible, pilot projects, stable incentives, a good green marketing, should be fruitful.

Moreover, at the European level there is still a great lack of integration among different policies (R&D, territorial cooperation, environment, development). Thus, the European projects should face these issues favouring the integration among research, innovation and business.

Insufficiency of incentives is stressed by experts as an actual barrier even with respect to eco-innovation, one of the instruments highlighted in SCP/SIP Directive (see Introduction): eco-innovative solutions are not yet sufficiently rewarded by the market. Increasing regulation such as substance bans and Extended Producer Responsibility will boost the creation of new markets for sustainable products and services. Market based instruments (environmental taxes, subsidies) will reward the ambitious firms to reap the benefits of sustainability.

Incentives are something different from subsides. The last ones prevent internalization of externalities and capture the full cost of natural resource use. The examples include subsidies to coal, water or fuel.

Removing these subsidies and creating an appropriate tax on negative environmental impacts would stimulate and reward the market for eco-innovative solutions, while bureaucratic simplification could act as a virtuous incentive, mainly for SMEs.

Other barriers are represented by: deficiency in demand side, in particular in many domestic markets, even in presence of an increasing global demand for sustainable products; limited access to finance (the so called "credit crunch"), that discourages especially SMEs to implement eco-innovation, often characterized by up-front investment and longer pay back periods; lack of technical knowledge and expertise to both develop eco-innovative solutions and adapt them, another problem affecting particularly SMEs, which in addition face a lack of information about existing market opportunities.

To answer to all these points of weakness and threats, a huge set of policy recommendation emerged.

As we remarked at the beginning of this final Chapter, the policy following recommendation come from each step of the analysis (interviews to experts, grids filled by partners, working groups on specific issues), and they have been discussed in the international workshop, both in the World Café session (held on may 14th) and in the following dedicated seminar (held on may 15th). A subsequent exchange of impressions, commentaries and corrections led to the final set of 20 recommendations, all of them characterized by a title and a slogan, a short description and an illustration of target groups they are destined (see Position Paper on Policy Recommendations), gathered in four areas of intervention.

The first area deals with **policies integration and harmonization**, from the general to the specificity of single sectors and instruments:

1. Sustain green economy in support of re-development
   It is necessary to promote, stimulate and invest in the green economy, in order to overcome this economical crisis; this can be done through the creation of new job and enterprises and the reconversion of old ones;
2. The key role of the EU for SCP policies development
   EU must favour a harmonization of standards and norms, circulating BATs and information on projects and plans, and designing benchmarking on SCP policies in each sector; and at

the same time EU must watch over SCP policies to avoid that harmonization blockades innovation;

3. Implement the integrated approach as a key factor for SCP policies future
   SCP policies must evolve towards a higher integration in both senses of subsidiarity among European, national, and regional levels, and of concurrent use of different instruments;
4. Support the improvement of IPPC Directive measures and voluntary actions
   improving the IPPC Directive implementation in the Mediterranean area to enable gradual voluntary action rather than introducing additional legally binding or costly requirements to the industry, and monitoring the permits;
5. Implement an integrated approach for the supply chain
   a widespread integrated approach to sustainability has to be stimulated not only in the production and consumption segments, but even in that fundamental intermediate segment given by supply chain;
6. Support the sustainable industrial areas
   the widespread of sustainable industrial areas, managed in a unitary way, and capable to offer common environmental infrastructure and innovative services has to be stimulated in order to guarantee innovative services and environmental infrastructures.

A second area claims for the need to strengthen the activity of **awareness, dissemination and education** on SCP:

7. Vocational training as the key to provide development opportunities
   vocational training is a main heal to contrast the crisis and provide opportunities for employment and development
8. An education framework in support of SCP policies and IAs management skills
   we need to integrate SCP issues and IA managers skills with university curricula, such as master degrees, to have in the future experts and managers on integrated SCP policies;
9. Provide technical support to firms;
   the lack of knowledge on SCP policy among firms is a major

problem; there is a need to develop training programmes and support tools and provide technical support to businesses;

10. Firms' responsible behaviour must be awarded and famed;
    one of the best ways to do this is promoting CSR as an opportunity and long term competitive advantage;
11. Implement social marketing campaigns;
    albeit having demonstrated that social marketing initiatives and campaigns have a great impact in reducing behaviour opposite to SCP, they showed to be insufficient. So, they must be implemented.

The third area of intervention is related to **networking** as an instrument to raise the system competitiveness:

12. Continuous involvement of local authorities;
    higher and continuous involvement of local authorities must be pursued, since SCP policies are pivotal to regional sustainable development;
13. Networking as the key for international competitiveness;
    networks increasing the possibilities for SMEs to compete on international markets must be stimulated. At this aim, collaboration among IAs, enterprises, Local Authorities and Territory/ Local community is very important;
14. Integrate, develop and harmonize inventories and databases;
    integrating, developing, and harmonize inventories and databases is a main issue to improve the productive sectors of the Mediterranean area, taking into consideration the data quality, that needs to be harmonized;
15. Create networks to share BPs and BATs;
    creating Mediterranean or European platforms and networks promoting the transfer of technologies and best environmental management practices for eco-innovation;
16. Cooperation among research centres, SMEs and local bodies
    an improvement in cooperation among research centres, SMEs and local bodies could help bridging the gap between theoretical research and territorial needs, and deal with the lack of knowledge on SCP policies among firms; this task could be profitably played by IA's managers.

Finally, a relevant area of intervention to push SCP policies regards the issue of **tools**:

17. Revise the public grants and incentives system;
    the public grants and incentives system needs a revision, in order to reward the targeted organization in a stable way, and not exclusively in monetary form; to allow the implementation of experimental operations corresponding to a long term strategy and aiming at being then disseminated;
18. Support SMEs through innovative financing systems
    there is a need for innovative, specific financing instruments to support SMEs and SCP policy development, in the line of financial products given out to incentive energy saving and production from renewables;
19. Promote ecodesign processes, LCA, carbon footprint, total material footprint, and GPP
    local and national administrations should promote ecodesign processes, LCA, carbon footprint, total material footprint, and GPP by applying this methodologies into their services, as a reference for companies; public bodies should also support the comprehension and communication of these tools, in order to spread their use;
20. Apply SCP through pilot actions
    pilot actions should be promoted and funded in order to practically apply SCP in different contexts, test and solve the problems, show the benefits, and encourage the spreading of positive experiences.

7.3 SCP policies as the product of collective intelligence

Starting from the essential description of the environmental issue as a matter of resources depletion of soil, biodiversity and fossil source of energy, of pollution/degradation of water, air, soil and food, and of high concentration in the atmosphere of climate change gases, we can depict three different socio-political approaches to it:

1. **Ecological modernisation**, a mix of governance and technology that creates the conditions for the diffusion of eco-innovations

by scaled networks (nutshell, regime, landscape) that are the levels of transition theory (Geels, 2004).

2. **Ecogovernmentality**, procedures, institutions, and legal forms that compel common people to internalize ways of knowing and conduct, reproducing and extending the influence and constitutive force of neoliberal doctrines (marketed regulation, participation, and rational decision-making) within and between local socio-natures (Ward, 2013).
3. **Political Economy of environment**, the most promising approach to understand the actual form and stringency of environmental measures appears to be one which tries to understand how various interest groups interact in specified political settings with environmental policies as the outcome (Oates and Portney, 2003).

None of the previous approach could be considered satisfying, since all of them consider sustainable and environmental policies as the outcome of a restricted interaction: among experts in the first case, among agents in the market in the second, and among policy maker and interest groups in the last one.

Following these lines, the main results of the environmental policies started at least 30 years ago seem to be that best outcomes have been reached in the field of pollution control and human health, while resources depletion is sharply divided according to North-South partition of the world. At the same time, the widespread increase of industrial environmental efficiency is nullified by rebound effect. Measures to tackle climate change are undermined by the low consensus and some uncertainties; in any case, concrete by-product results are the measures for renewables and energy saving.

At the moment, many sociologists agree that the role and the weight of environmental policies is prominent when the environmental services are paid by users and provided by public agencies (waste management, drinkable water and sewer grid, vehicle eco-pass, district heating system), while the same weight is low (or even contrary to environment) on household consumption reduction, even if many efforts for education and communication have been done. Finally, in the industrial field the environmental policies are strongly affected by

incentives supplied by national governments that, in turn, are subject to strong lobbying.

Despite emphasis on integration, pro-environment actions are partial, very linked to the price signal (clear and stable fee and incentives); big financial means are under control of public utilities and national governments, with local authorities constricted at the weakest level of political action. At the end, many environmental policies, especially at local level, sort symbolic results, often in the form of single best practice. They have small financial means (political matter), weak instruments of impact assessment (cognitive matter) and an ambiguous range of action on people lifestyle (constitutional matter).

To change this picture, a global effort is needed. It is an effort in the direction of communication, raised awareness, and participation both at the institutional and at the individual levels. This issue has been stressed at each step of the ECO-SCP-MED project, and particularly in the networking phase: going back to the key-elements emerged from the world café session, we come across terms and notions such as reciprocal recognition (of agents), higher commitment (of policy makers), involvement (of citizens, firms, universities, local bodies), continuity (in policies, in incentives, in commitments), integration (of agents, tools and instruments), bottom up, partnerships (of community, of public and private subjects), awareness, lifelong learning, …

They are all parts and components of a **collective intelligence** that ought to work indefatigably to generate, implement and strengthen SCP policies in the Mediterranean. In the era of *wiki* and 2.0 attitude, to be effective sustainable policies must originate not only from the acts of policy makers and institutions, with their paraphernalia of laws, rule books, plans and programmes, but rather from the day-by-day requests, provisions and actions by administrations, firms, citizens, communities, associations, different kind of organizations, and so on.

The following table can give a flavour on the role of each kind of actor in the implementation of SCP policies.

	Laws/ regulation	Plans/ programmes	Incentives	Networks	Campaigns	Pilot projects	Voluntary tools
UE	X	X	X		X	X	
National level	X	X	X		X	X	
Regional level	X	X	X		X	X	
Local level			X	X		X	
Firms/ business organizations				X	X	X	X
Citizens				X		X	X

Tab. 7.4: The involvement of different actors in the implementation of SCP policies

Obviously, the modality of activation changes depending on the kind of actor. If institutions at the different levels are concentrated on the public health, firms and citizens are more prone to individual interests, respectively profits and personal well-being. As pointed out in the previous Section 7.2, the way to address both of them to SCP policies stands on the issues of incentives, of a wider and easier implementation of tools such as GPP, LCA and eco-design, of the spread of eco-innovation, and of education and dissemination.

With respect to incentives, there is a strong debate on their real effect on firms behaviour. The participants to the project remarked their relevance, putting into evidence nonetheless that they must be implemented in more effective modalities than the simple subsidization, with continuity and innovative forms, not exclusively monetary, apt to experiment new solutions.

GPP, LCA, and eco-design must be strongly supported by public policy makers to built up a stable reference for companies and markets. In this case, a huge problem is to clarify and simplify the message and the benefits these tools imply, a message still too technical and difficult to maximize its potential. The same happens for carbon and total material footprint assessments.

Another relevant issue emerged, useful to catch companies' atten-

tion on SCP policies is related with eco-innovation. Put at the roots of the notion of **blue economy** by Gunter Pauli (2010), eco-innovation is considered important for the sustainable development of firms, particularly of SMEs: whenever an innovation succeeds in the market, its outcome is progressively imitated by other competitors, being set as a standard in a few years. In this sense, it is important to address R&D to successful eco-innovation, to favour the increase in the market of eco-innovative companies and the following imitation by the others.

Finally, education is a paramount issue to make citizens and consumers more aware of the importance of sustainability. It is the so called **nudging**, introduced by Thaler and Sunstein (2008) to indicate all aspects concerning influencing the choice and behaviour of individuals without any kind of coercion, neither the one encompassed by norms and laws.

Thaler and Sunstein put emphasis on the notion of "choice architecture", a set of methods, criteria, and strategies that could change the local physic and social environment where human beings live. Framing this environment in a more favourable way with respect to public health, sustainability, social well-being, will affect positively the ability of distinct individuals in making choices, substantiating once more the notion of collective intelligence.

To give birth, once again and once more, to a dancing star from the chaos.

Annex 1

Glossary

Best Available Practice (BAT)	Most effective and advanced stage in the development of activities and their methods of operation which indicate the practical suitability of particular techniques for providing in principle the basis for emission limit values designed to prevent and generally to reduce emissions and the environmental impact
Carbon footprint	Indicator that measures the environmental impact of human activities on global climate; it expresses quantitatively the effects of climate change derived from the so-called greenhouse gases generated by a person, an organization, an event or a product (good or service). It takes into account all the climate-altering gases of the Kyoto Protocol
Circular economy	Initiative regarding the Sustainable Consumption and Production (SCP) program (UNEP) that strives to meet challenges of addressing unsustainable patterns of consumption and production through cleaner production, industrial ecology and life-cycle management.
Command and control	Environmental policy where an authority set the admitted standards through a legislative act, organizes a monitoring system, and sanctions the cases of non-compliance
Double dividend	Assumed double advantage from substitution of labour taxation with eco-taxes (two advantages being the reduction in production of polluting goods because of environmental taxation, and the higher job creation because of lower labour taxation)

Eco-innovation	Industrial innovation motivated by environmental (ecological) drivers
Eco-design	Integration of environmental aspects into product design with the aim of improving the environmental performance of the product throughout its whole life cycle
Ex-post Liability	Policy scheme addressed to identify ex-ante the potential responsible for an environmental damaging event, and to charge ex-post compensation costs when the event takes place
Extended Producer Responsibility (ERP)	A founding principle of EU environmental global policy, stating that all actors along the production and retail chains are responsible for the goods they produce/mediate "from cradle to grave"
Externality/External cost	Gap existing between the cost borne by producer (private cost), and the costs borne by the community as a whole (social cost). It can be negative and positive as well, environmental or not. It is often used as a synonymous of "pollution", but it is related with the fact that it implies a cost or a benefit that escape the market rationale (in this sense, "external" to the market)
Incentive	Policy aimed at granting with a financial or a non-financial to stimulate a virtuous behaviour by the beneficiary
Involvement	Participatory models enforcing the sharing of know-how and the learning by interacting
Labelling	Policy aimed at guaranteeing that consumers have access to complete information on the content and composition of products, in order to protect their health and their interests
Life Cycle Assessment (LCA)	Internationally standardised methodology that helps to quantify the environmental pressures related to goods and services (products), the environmental benefits, the trade-offs and areas for achieving improvements taking into account the full life-cycle of the product.
Mainstreaming	Make recommendations and good practices be part of new trends of development and future routine of firms and institutions

Policy	Set of laws and legislation, principles and associated guidelines, tools and strategies designed and enforced mostly by governing bodies, but even by innovative businesses, business associations, research bodies and training centres, to direct and address actions for achieving long-term collective goals
Policy maker	Person or institution in a position to decide for the designing, coordination, and implementation of policies
Polluter-payer principle	Environmental justice principle, claiming that the agent responsible for an externality, and not the community or others agent, must bear the cost of it.
Porter hypothesis	Assumption that claims for the positive effect of a tighter environmental legislation on innovation capability of firms
Public good	In economics, a good characterized by the lowest levels of rivalry in consumption and of excludability in the provision
Recommendation	Set of suggestions, advice and guidelines for improving the effectiveness and the efficiency of a policy in the future
Resilience	Capability of a system to reach a new ecological equilibrium, once altered by a disturbance (either a natural events or a human activity), that has perturbed the initial state
Subsidization	Policy that calls for the direct payment of the beneficiary to induce a defined action (or inaction) by him
Sustainability	Epistemological approach claiming for the need to reach a unique general equilibrium of compromise from the sectorial objectives of economic, social, and environmental fields
Tax	Any kind of charge levied on a financial item, and paid to a public body
Toolkit	Set of tools and instruments gathered together to facilitate and harmonize their use; the tools of a toolkit can be employed combined each other or individually
Transition	Change process from a fossil-fuel derived economy to a low carbon and green economy, based on the sustainable development principles

Annex 2

Interviews to Experts – List of respondants

Name	Affiliation	Code
1. Donato Bedin	Association of the Venetian Chamber of Commerce (UnioncamereVeneto), Italy	DoB
2. Patrizia Bianconi	Emilia-Romagna Regional Government, Italy	PaB
3. Monique Cason	EPA Plaine du Var, France	MoC
4. Dimitris Diamantis	Municipality of Thessaloniki, Greece	DiD
5. Maria Flavia Di Noto	Association of the Venetian Chamber of Commerce (UnioncamereVeneto), Italy	MdN
6. Alessandro Di Stefano	Emilia-Romagna Regional Government, Italy	AdS
7. Paolo Fabbri	University of Parma, Italy	PaF
8. Giuseppe Garcea	CCPB Ltd, Italy	GiG
9. Renzo Giuntini	Municipality of Cantagallo, Italy	ReG
10. Serena Losi	Municipality of Tavarnelle Val di Pesa, Italy	SeL
11. Josep Maria Masip	Catalonian government, Spain	JoM
12. Rafael Mossi	Chamber of Commerce of Valencia, Spain	RaM
13. Kristina Mumic	APO Environmental Services Ltd, Croatia	KrM
14. Marisa Parmigiani	Impronta Etica network, Italy	MaP
15. Janez Petek	Energy Agency Spodnje Podravje, Slovenia	JaP
16. Enric Pueyo	Catalonian government, Spain	EnP
17. Aurélie Ruffinatti	Réseau ARPE, France	AuR

18. Corrado Storchi	LandiRenzo SpA, Italy	CoS
19. Efi Tritopoulou	Hellenic Recycling Agency, Ministry of Environment, Greece	EfT
20. Burcu Tunçer,	SCPRAC/SWITCH-Med, Spain	BuT
21. Robert Verbanac	Environmental consultant, Croatia	RoV

Methodological note: in next pages are reported the interviews exactly in the form sent by partners, apart from an edit uniformity. No other change nor alteration have been made, not even grammar nor orthographic corrections.

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Finito di stampare nel mese di novembre 2014
presso

Biblioteca

ECO-SCP-MED is a Capitalization Project funded by MED Programme 2007- 2013. The partnership of the project is made of IAT Andalusian Institute of Technology, Lead Partner; CERTH Centre for Research & Technology – Hellas; ENEA Italian National agency for new technologies, Energy and sustainable economic development; Province of Bologna; AVITEM Agency of Sustainable Mediterranean Cities and Territories; Sostenipra – UAB Universitat Autònoma de Barcelona; Cro CPC Croatian Cleaner Production Centre Institute for Promoting Cleaner Production; SRC Bistra Ptuj Public institution Science Research Centre Bistra Ptuj; SSSUP Scuola Superiore di Studi Universitari e di Perfezionamento Sant'Anna; CCI NCA Chamber of Commerce and Industry Nice Côte d'Azur. The Eco-SCP-Med Consortium consists of 10 complementary partners from 6 different European Countries, namely Spain (Sevilla, Barcelona), France (Nice, Marseille), Italy (Rome, Pisa, Bologna), Slovenia (Ptuj), Croatia (Zagreb) and Greece (Thessaloniki).

ISBN 978-88-7395-972-4

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