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**Conference Paper**

# Organizing Model for Sustainable Small and Medium Firms The Italian case Study

39th Congress of the European Regional Science Association: "Regional Cohesion and Competitiveness in 21st Century Europe", August 23 - 27, 1999, Dublin, Ireland

**Provided in Cooperation with:**
European Regional Science Association (ERSA)

*Suggested Citation:* Prezioso, Maria; Renzetti, Patrizio (1999) : Organizing Model for Sustainable Small and Medium Firms The Italian case Study, 39th Congress of the European Regional Science Association: "Regional Cohesion and Competitiveness in 21st Century Europe", August 23 - 27, 1999, Dublin, Ireland, European Regional Science Association (ERSA), Louvain-la-Neuve

This Version is available at:
https://hdl.handle.net/10419/114350

# ERSA 39th European Congress 1999

## ORGANIZING MODEL FOR SUSTAINABLE SMALL AND MEDIUM FIRMS
## THE ITALIAN CASE STUDY*

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**SESSION:** ***COMPETITIVE AND SUSTAINABLE GROWTH***

Key words: Italian competitive firm organization
Sustainable development
Total Quality Environmental Management

## Abstract

This paper proposes an organizing model to synthesize the competitive development and sustainable aims of Italian firms.
The problem is analyzed at different geographical scales, considering the European Total Quality Environmental Scheme (EMAS – Environmental Management and Audit System) and European/Italian Environmental Master Plan (Fourth generation plan).
Using the space-cost curve (Smith's model, 1966) and its modern interpretation (Prezioso, 1996) for small and medium firms' re-organization in a qualitative and environmental vision, the research develops a generic "environmental quality/sustainable development" curve.
In the end the paper proposes a general scheme to carry out the model in Industrial Disctricts to prevent environmental risks and to stimulate regional cooperation for the integration.

* Though in the unity of aims and in sharing the formulation and the results of this paper, paragraphs 1, 3, 6 have to be attributed to Maria Prezioso, paragraphs 2, 4, 5 have to be attributed to Patrizio Renzetti.

## 1. Introduction

The relation between the competitive growth and the environmental development of economic systems is the aim of the analyses and measures to concretize the paradigm of sustainability at more geographical scales[1].

The paper reconsiders this relation in order to define, at different levels, the moments of integration between the forms of the territorial planning of productive areas (industrial, in particular) and the instruments of firm management in Italy (referring to the management models of the quality of productive processes, in the vision of Total Quality Management – TQM)[2]. The aim is to go beyond at a local level the present static condition of the environmental quality management of firms, which is considered to minimize the direct impacts[3] of production on the environment of the single site, and to internalize sustainability (a global concept).

The paper proposes both to reorganize the economic activity of processes within the framework of general environmental compatibility within the single plant (Total Quality Environmental Management – TQEM)[4], and to develop a dinamic vision of the relationship between firm and territory, through the integration of productive systems into the anthropic and natural ecosystems in which they operate.

The research identifies a series of elements, aiming at the environmental field, which interact with the typical industrial production factors in order to harmonize their use, beyond the logic (nowadays exceeded) of the simple minimization of waste and polluting emissions and the optimization of firm performances, in a multisubjects vision of the problem.

The level of analysis integrates the microeconomic dimension, usually centered on the single firm and its productive processes, with the geographical-economic scales of reference.

The paper presents the results of the studies carried out for the local dimension of the productive system, which in Italy has been defined by the Marshallian Industrial

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[1] This is a concept defined by the Brundtland Report *Our common future* (1987), edited by the World Commission for Environment and Development (WCED), as a development that satisfies the present needs without compromising the ones of the future generations.

[2] The TQM requires a general reorganization of firms activities to develop a management leaded by the paradigms and the philosophy of quality at all levels.

[3] "An environmental impact is the whole of physical, biological and social alterations that a certain initiative produces on the environment. The aim of the impact procedures is to know beforehand, through an analytical approach, if the environmental alterations allow the restoration of the acceptable balances in the use of environmental resources and for the guardianship of the health and of the conditions of life of the people" (Panizza, 1988, in Prezioso, 1995, *p.13*).

[4] The TQEM requires the implementation of the environmental management into the general model of firm organization based on the TQM.

District[5], made up of a group of firms operating in an integrated manner and which are linked to a series of relations.
The study is completed by analyses carried out at lower scales, in order to identify single relation processes among two or more productive units and the relations between the single firm and the surronding environment.
Then the paper presents a simple model of sustainable production management that extends the territorial boundary of the "governance" beyond the portion of area directly interested in the activity of a group of firms, identifying the *wide area* of TQEM.

## 2. The research for new scale economies. The starting hypoteses

Sustainability requires the adoption of a procedure characterized by a *multisubjects approach* (with the intervention of different experts), in which the focal point is represented by the total *integration* between the different components (with different detail levels at the various territorial scales), following a *logic of prevention*. The aim is the development of an endogenous model of socioeconomic development, through the application of a method (or of a series of methods) and of the right measures to face the *qualitative logics* of environmental complexity.
The main limit is represented by the opposite values given to the environmental development and to the competitive growth processes of economic systems, because the aims are at the same time: to carry out development plans and projects about specific areas; to create a compatibility at all geographycal scales between development needs and planning techniques; to operate a right transposition in a qualitative form of procedures based on quantitative analyses, to consider also components that have not an immediate monetary value.
The present international politic trends are characterized by a company's approach, so environmental management is always implemented at the level of reorganization of single productive units. This is the present foundation of Environmental Management and Audit System (EMAS)[6], the main instrument for the environmental management of the European Union, and of ISO 14000[7], international rules deriving from the ones for the

[5] Marshall defines the Industrial District as a concentration of small specialized firms, that is characterized by a great efficiency, because of the larger know-how, the larger specialization, the larger circulation of informations, the larger innovation, the lower transportation costs, thanks to the proximity among the firms, the development of external economies and the attraction of managerial competences and qualified workers.
The industrial district can be defined as a system of interacting parts (firms and anthropic groups), and the space is the element that integrates them; it is an economic unit with its strong specific qualities and its proper territorial dimension (Del Colle, 1997).
[6] The EEC Regulation n. 1836/93, for the implementation of a voluntary system of ecomanagement and environmental audit for the Members of the Community.
[7] The International Standard Organization (ISO), a private international organization that proposes not compulsory rules, edited the ISO 14000 about the procedures for the environmental quality management in the September of 1996.

quality of firms processes. The integration among this approach and some elements of territorial and environmental planning techniques, considered by the Environmental Impact Assessment (EIA)[8], allows to consider the implications of sustainability in a field, as the one of economic planning, centered on the main importance of competitive development (Prezioso, 1995).
The aim is to apply a global concept to a local system, in which processes and relations are characterized by strong specific qualities. Then it's important to identify the subjects who operates on the territory and the binding local specific qualities in each intervention; but also a method/procedure able to synthesize analyses, planning and actions in one only solution, considering all the important factors during the different moments of the study of impacts and compatibility. So it's necessary to carry out a careful evaluation of all the proposed planning solutions and of the specific territorial context they refer to.

In the Italian case some elements have been considered for the development of a simplified model of industrial production's sustainable management, good in general for every local area: the great number of small and medium firms, the strong differences characterizing their different organization forms in regional contexts, the technical, financial and managerial incapacity to face the problem of environmental guardianship by their own, their typical aggregation forms into homogeneous industrial groups, following the model of Marshallian Industrial District.
Which are the possibilities to go beyond the problems of their individual resources scarcity, through the exploitation of the peculiar *agglomeration* advantages, like intercompanies cooperation ties, at the level of experiences exchange and resources sharing, but mainly through the development of *external economies*, represented by the strong decrease of activity costs, thanks to the common use of a series of infrastructures and services, that is a very important element in the management of impacts of production on the environment?
There are three main paradigms to borrow:

- the analysis of compatibility between environmental development and economic system growth;
- the development of a model of firms localization (or relocalization) for the management of sustainable production at a local level (considering environmental limits);
- the adaptation of this territorial organization model to a typical but general context of small and medium firms agglomeration.

The proposed model is based on Smith's analysis (1966) about firms localization, that identifies the suitable area of localization for industrial production (Fig. 1). Smith considers the prices as fixed, while the total costs of transportation change; the

[8] The EIA is a tool for the preventive evaluation of the possible environmental effects caused by generic works that have to be realized on the territory. The EIA has been created in the USA in 1970, but it has been introduced in Europe only by the EEC Directive 337 in 1985 and transitorily incorporated in Italian legislation in 1988.

localizational choices depend on the distance (and its costs), in relation to the specific places that present suitable conditions for the settlement (material source or market).

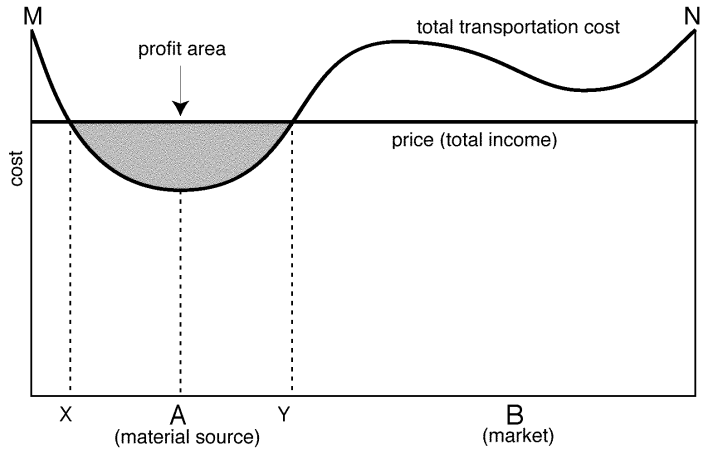


FIG. 1: *Smith's space-cost curve (Lloyd and Dicken, 1986).*
A represents the best localization (lower cost), while X and Y (the spatial margins of profit) delimit the profit area for firms.

## 3. Sustainability analysis and environmental quality curve

The realization of sustainability requires the comprehension of a series of fundamental paradigms and their integration with basic concepts of the qualitative vision of development.
The logic of prevention of the production impacts on ecosystems, which have already been internalized by the techniques of production reorganization for the global improvement of economic systems, has to be enlarged to satisfy the need for forms of competitive growth compatible with the forms of environmental management. In fact, the Total Quality (TQ)[9] imposes a general improvement of firm performances in relation to a series of limits and opportunities, that are represented by the elements of the context

[9] The Total Quality requires a deep work for the reorganization of the managerial processes and for the diffusion of a new culture inside the firm. It means continuous improvement, customer satisfaction, damages prevention, larger productivity, flexibility and efficiency, careful investments, promotion of the company image and development of internal and external communication, professional training for competences improvement, research, risks minimization and staff involvement at all levels to concretize the firm's strategic approach.

(resources and raw materials); but at present only the external environmental aspects that directly interact with economic activities and their operative and managerial procedures are considered.
This is the course of European Union (voluntary) rules and measures, that propose models for processes restructuring focalized on the minimization of wastes and productive disadvantages, aimed at the continuous improvement of the single firm performances.
The site of production is the place of the TQ action, so it's correct to state that its application is limited to industrial situations of great dimensions, as present experiences largely show (IBM, Enichem, FIAT, and so on).
The need for a methodology for the prevision and evaluation of environmental implications, to go beyond the limits of the typical quantitative trend of the evaluations that preceed TQ projects, is generated by the usual application of partial economic evaluation methods, as the Costs-Benefits Analysis, in every case in which productive activities are involved. By the consideration of the environmental variable, this approach shows all its limits, because the large number of interested scales would give to environmental management a role limited to the simple minimization of negative effects ("externalities") into the plants. On the contrary, there's a need for developing an analysis method able to identify all the existing relations, direct and indirect ones, between productive systems and environmental systems.
A qualitative method, even if scientifically rigid as the EIA, is absolutely not directly appliable to firms, because it needs for a multisubjects approach, to cover all the fields of study implied in the environmental theme. But it's also true that the single firm *have not to* invest in these aspects more than the necessary to implement a firm management system compatible with the external conditions, because the EIA's procedure requires some external (territorial) evaluations, rarely included in economic analysis.
It's clear that a qualitative approach implies a greater effort than a quantitative one, because it implies not only costs to minimize the polluting emissions or to promote not renewable resources conservation, and it requires the extrapolation and interpretation of ecosystems' internal phenomena, with a careful operation to integrate the results of sectorial analyses based on an articulate system of *environmental indicators*[10]. These are not only the monetary ones deriving from economic sciences, according to the concept of *weak sustainability* (perfect substitution between artificial and natural capital); nor only physical measures deriving from natural sciences (Rennings and Wiggering, 1997). They are the result of integration, and they are able to evaluate the real qualitative consistence of environmental goods on the territory, and their decrease, caused by the impacts of projects actions, according to the concept of *strong sustainability*.

[10] "The environmental indicators can be defined as that anthropic and natural characteristics, or physical-chemical parameters that, because of their nature, can characterize an environmental situation and are particularly sensitive to each event that can alter a change in their state (Prezioso, 1991)" (Prezioso, 1995, *p.95*).

The EIA follows this second concept; it is not only a quantification procedure of stricly economic measures in relation to components that don't have an economic value, and its aim is not to realize interventions characterized by the production of an high economic value, but also a strong environmental impact. If correctly applied, in a preventive way, to a development project[11], the EIA shows the necessary data of Initial Environmental Quality (without considering the project) to evaluate the decrease of Final Environmental Quality caused by the effects of the intervention (Prezioso, 1995).

The great firms are indifferent to the territorial dimension, but they focus their efforts to develop models for firm management. Their environmental interactions are limited to the portion of territory directly in contact with the limits of the production plant. This is the reason why the EMAS is referred to the *site*, and ISO 14000 to the *organization*, both meaning a portion of physical space that contains only the elements directly influencing firms activity.
On the contrary, the analysis of environmental interactions cannot be restricted to the only natural elements identified as production factors, that in a classical conception have a quantifiable economic value in direct relation with firms incomes, because the environment has a larger dimension, and it includes also a series of components not directly economically evaluable nor immediately connectable with productive processes. Moreover, if the sustainability requires the mantainance of a determined level of environmental quality, it's impossible to consider only the simple action for the conservation of natural resources and the decrease of polluting emissions.
To realize a whole of conditions integrated and *compatible* with the necessities for the growth of economic systems is necessary to set aside the optimization concept, to evaluate at the same time the environmental quality and the firm quality. The renounciation for some portions of environmental quality or of firm quality in an acceptable measure (sustainability) allows to fix the right value of total quality to obtain with the planning and realization of new development interventions.
*Environmental quality*, in this vision, represents the initial state that rarely is increased by firms activity, because the firm, working on the territory, often causes a *decrease* in the value of the starting conditions (in terms of the use of resources or of the alteration of some equilibrium parameters or of the production of negative externalities). So the variation of the environmental quality is assumed as a *negative value* (in modulus), because it can increase with the economic development.
On the contrary, the value of *firm quality* (in modulus) represents the contrary of the first factor, because it is increased by the realization of projects (the same ones that affect on the territory). It increases proportionally to the capacity to realize firm's *expected quality* during the project development.

[11] The EIA is very often applied to projects that have already been evaluated with economic analyses, so it becomes a simple control procedure to limit the environmental damages, just proposing some partial corrections, instead of being used as a real instrument for environmental planning.

The variation of environmental quality also represents, in relation to its size, the difficulty to reestabilish the initial conditions of equilibrium (the larger is the environmental variation, the lower are recovery possibilities, because the consequences of the impacts caused are deeper); the variation of firm quality represents the width of the incidence of works realization.
But there is an *environmental quality limit value* (that is specific for each context, and it's determined through the initial environmental analysis) beyond which the consequences of changes could be irreversible for the environment. So it's necessary that the decrease of the environmental quality, that produces the final quality, never reduces the initial quality under the fixed limit. So the firm has to adopt a project of quality variation able to reach the final quality, even if reducing the condition of expected quality fixed by the project (Fig. 2).
It is obvious that the development of firms system has to slow down to preserve the limit level of environmental quality.

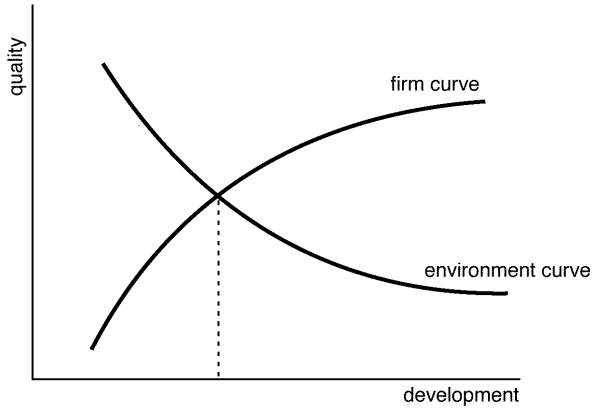


FIG. 2: *Relationship between Environmental Quality and Firm Quality (elaboration from Prezioso, 1996).*
The equilibrium is the point of minimum environmental quality decrease compatible with the growth of firm quality.

The application of these concepts to firm systems in the Italian case is very rare, but now it's possible to state that, also because of the evololution of the technological innovation and the techniques for the management of territory, the sustainability requires

the selection of the investments (always of a medium-long period), by the singles and by the system, to obtain a general improvement in the operative conditions of economic actors.
A concept of this dimension, if applied to a local context, requires a careful adaptation. Therefore, it is essential to identify a standard way of intervention for sustainability evaluation in a production area, and to adapt it to every specific context of its application.

## 4. Integration and cooperation: local development area

The great firms neglect the external context, because of their strong capacity to control the environmental complexity of the site of production; but the small firms live in a direct way the relation with the territory, because it influence them, and they need for a large availability of resources and favouring external conditions to survive, but also for other subjects to start a series of relations.
Therefore, the relationship between environment and firms is more direct in the second situation, because there are some processes of relation with the territory. This fact is confirmed by the great flexibility of monoproductive Industrial Districts in the adaptation of external inputs, thanks to the small dimensions of their productive units.
Even if the choice for the referring context could seem to be obliged, because this is the Italian situation, the real reasons for which an area of this kind could be the best place to promote innovative ways of the sustainable growth of economic activities are general: the integration with some great firms that work in the area through their decentered plants; the exceeding of the limits of managerial strategy based on the unitariety of the actions, even if working in environments different from the original one; the exploitation of the agglomeration advantages of small and medium firms that work in the same industry.
A. Marshall, in the beginning of this century, have made some considerations deriving from the observation of firms aggregations in which there were very deep relations of cooperation, beyond simple economic agreements, and the creation of an "environment" suitable for the development of innovations and competences[12]; but there are other geographycal-economic conditions to point out:
1. A group of small firms, if well integrated, can obtain costs advantages ("external economies") typical of great firms, external to their own, but internal to the firms concentration.
2. The production of "external economies" in a firms agglomeration do not only mean the reproduction of an advantageous behaviour by a group of different firms, but also produces a series of advantages deriving from their being independent units.

[12] The Marshallian Industrial District is not only a way to organize the productive process, but a "social environment", characterized by the relations among men and their inclination to work, saving, risk and so on (Becattini, 1987).

3. The collaboration allows the sharing and the exchange of competences for technological innovation, essential element for the environmental management of the firms.
4. The proximity allows a large saving of costs for transportation and moving from a plant to another.
5. The segmentation of the productive cycle stimulates firms specialization in one only productive phase, with greater possibilities to buy more efficient machineries and better adaptation to changes (because they don't need to reconvert all the productive cycle).

By the point of view of the environmental analysis the agglomerative advantages imply the enlargement of the area of study to a portion of space that trascends the limits of the single firm and involves all environmental elements, even if external to the single site of production (great productive units that internalize all the activity phases, never trascend the single site of production).
By this way a series of undesired effects on the environment of the productive process, external to the single site of production, but internal to the system of processes of the local development area, are put in evidence.
In the Italian case the Industrial District represents the testing place for integrated environmental management systems, according to the needs, explained in the beginning of this paper, to determine the wide area that allows to consider not only the direct impacts and relations among firms and the surrounding environment, but also the indirect effects, represented by the sum, or better the product, among the impacts, that areas with homogeneous internal characteristics have among them and inside themselves (Fig. 3).

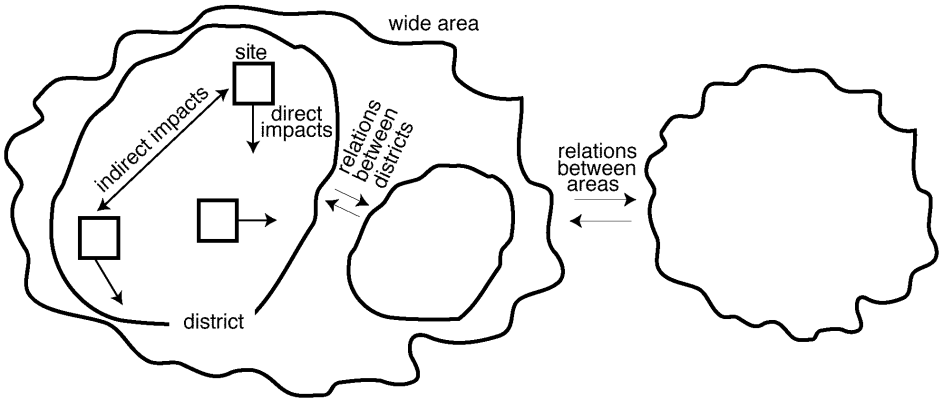


FIG. 3: *Territorial level of environmental analysis.*

The consideration of the *wide area* as the analysis unit allows to internalize into the district the impacts that are indirect for the sites of production, also considering the environmental relations among more knots of the same territorial net (according to a systemic organization of the space).

The socio-environmental systems (Prezioso, 1996; Musters, de Graaf and ter Keurs, 1998), considered as open systems, hardly conditioned by their internal relations, but also by the relations among the parts of different realities that interact with them, coincide with geoeconomic ones: the development local systems.
In the case of the single firm, if assumed as a sub-system, the relations with the referring ecosystem determine the dimension for the study of compatibility among the forms of development of economic activities, which produce a series of effects, and the conservation of a certain level of environmental quality, considered unrenounceable to avoid irreversible changes of state in anthropic and natural capital; this dimension must be the one of the local or ultralocal systems in which the relations among the productive sub-systems are evident (Fig. 4).

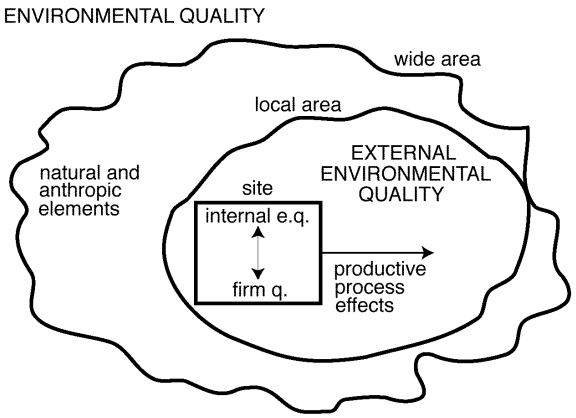


FIG. 4: *Environmental Quality dimension.*
The proper dimension of Environmental Quality is the global one, but it shows itself at all the local scales. Aiming at the environmental analysis for the sustainability of production it's important to analyse the factors that influence the *external environmental quality* (to the firm), and not the internal to the site of production one, because it is considered as a component of the firm management system.

So it is important to underline that the present direction of environmental management measures should be integrated with different competences, because the approach of the single firm, that considers sufficient an Environmental Management System (EMS) based on TQEM logic, must be completed with the dimension of the territorial planning, that in Italy is a public task.

## 5. Territorial environmental management model

If the problem of environmental management can be demonstrated at a territorial scale; if the moment of stronger influence of spatial characters on firms decisions concerns the choices for the localization of production plants; if the choice for a small and medium firms local area of development as the context of application of the proposed model requires a deep reconsideration of existing relationships among settled firms and the referring ecosystems; then it's possible to try an approach to the problem of the industrial production sustainability that starts from the processes of localization (or relocalization) of economic activities, also according to the paradigm of sustainability that considers the *preventive analysis* of the context conditions as a fundamental passage, to identify the forms for the exploitation in the less impacting way of environmental opportunities.

The technological and organizative evolution has allowed the subsitution of the traditional factors influencing the settlement choices of firms, expecially because of the exceeding of the limits connected with physical distance[13]. The characteristics of territory which can influence the productive efficiency of firms are nowadays the presence of structures and infrastructures in developed areas, or better in areas that have characters suitable for the organization of new productive activities.

The real productive factors are now the *environmental characteristics*[14] of the place, so it is correct to state that the connection with the territory is no more important in relation to its characteristics for industrial production, but on the contrary *productive characteristics have to be compatible with the specific territorial elements of the area to concretize localization choices*.

The *preliminary environmental analysis* allows to identify the territorial components that are interested in the insertion of a productive activity, so that it's possible to choose the optimum localization for each activity. By the point of view of firms, *information*[15] and *technology*[16], two key factors of economic development, that nowadays allow to go beyond a lot of limits deriving in the past from the scarcity of technical competences of operators and plants, become essential.

[13] In particular, the transportation costs and the presence of supply sources and markets are no more essential in the choice of industrial production localization as in the past.

[14] The reference is to a wide series of factors, because it is necessary to consider not only the environmental conditions of the place directly involved in the productive activity, but also all that social, economic and territorial elements that can influence (or be influenced by) the production.

[15] "Thanks to a good information support, it is possible to develop in a deeper way, by the operative point of view, the environmental integration" (Gerelli, 1995, *p.106*).

[16] The *technology* is no more the way to improve the economic efficiency of firms through the decrease of production costs, but, in the present optic of environmental and firm quality, *the evolution of organizative, managerial and technical solutions aimed to the elimination of the risks connected to specific problems deriving from the context to face*.

The new relevant factors for industrial localization are the presence of a series of structures and infrastructures, that are common to all the firms in the development area, just dedicated to the satisfaction of the needs of environmental management.
But these *territorial services* have realization and management costs too high for a single firm, nor can be discharged on the settled community (because of equity reasons, but also because some of these structures are fully dedicated to production activities), so some groups of small and medium firms decide to share the *urbanization costs* of the area and to cooperate to enjoy the economic advantages deriving from the territorial agglomeration.
Besides, the common localization and management of production environmental sustainability become essential if the settled activities are different one from the other, so that they can only share a few territorial infrastructures but not the creation and mantainance of specific services, useful for single kinds of activities.
These facts justify, also at a territorial level, that *the single firm cannot satisfy the requirements of productive sustainability by its own, but environmental management can be fully effective only if referred to territorial systems of integrated firms*.

The localization costs, very high in the first phases to face the realization of the essential structures for production and environment management, decrease in time, expecially in relation to the number of firms that partecipate to the activity of agglomeration. They bear the initial costs, that are then partially added to products prices, to cover a portion of the higher production costs deriving from the new needs for sustainability, so they cause a positive change in selling prices (to grant the products environmental care), but their decreasing in the long term in relation to the higher number of firms that pay the common costs for environmental management.
So, reconsidering Smith's model (already explained), the prices cannot be assumed as fixed, because they are influenced by the new logics of sustainability, but also the costs, fixed in theory (because they initially are referred to structures realization), change in relation to the dimension of the agglomeration[17], because of the possibility to share them among all the present firms, but also for the influences of agglomeration economies and diseconomies on their trend.
Therefore, the main problem in localization choices of production, after the preliminary study of the area and of its environmental characteristics to integrate them with the ones of economic activities, is *the right dimension of the area for sustainability, that can't be the optimum dimension for the creation of external economies, but the one apted to bear environmental costs and responsibilities near to the economic advantages of production growth* (Fig. 5).

[17] The environmental management costs, and not the distance (and the trasportation costs), are considered in this case as the main factor for the localization choice, because this is a model of spatial concentration, so the problems of accessibility are minimized by the proximity among the different units of the general system of production.

The two marked areas both represent the concentration of a number of firms able to obtain positive external economies for production, so to allow economic efficiency and reintegration of costs, but only the smaller area identifies a sustainable situation, even if not an optimum state by an economic point of view, because it allows to integrate environmental needs with the ones of production, even if with some renunciation.

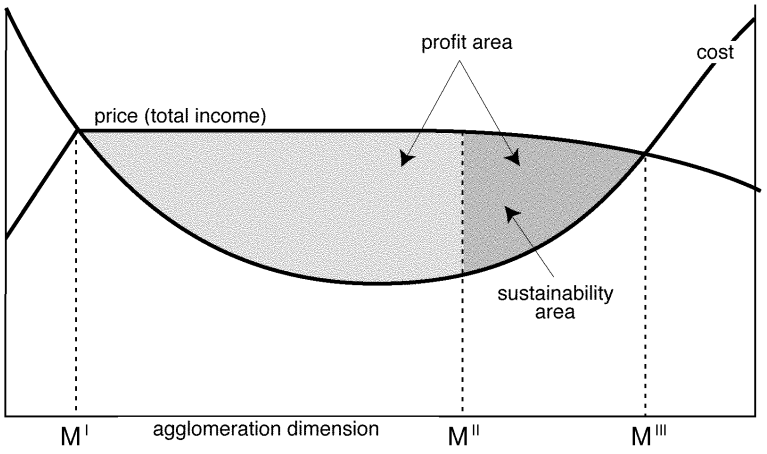


FIG. 5: *Industrial localization for sustainable production.*
The costs change in relation to the agglomeration economies and diseconomies, while the prices (not fixed) first increase, because of the initial costs for the localization in the area, then, after a period of stability, decrease, because of the agglomeration advantages, that are determined by the dimension of the agglomeration and cause an improvement in the economic efficiency of the production. The suitable localization area for firms (according to Smith) is represented by the spatial margins of profit M' and M''', while the sustainability area (M'' – M''') is smaller because of the necessity to reach a determined agglomeration dimension, able to create some particular external economies for environmental management, that allow the decrease of selling prices.

Naturally this reasoning is absolutely true only in the cases of *new industrialization* of an area (that is the best situation), but it is necessary to consider other elements for the analysis of cases of firms localization (or relocalization) in structured situations, expecially if it is necessary to *reorganize* the area in relation to the predisposition of a right territorial environmental management system for production. In fact, it is important to consider the present elements, by enlarging the preliminary analysis also to the conditions deriving from the advancement state of industrialization process, in terms of deeper limits imposed by the authorities, presence of external economies and impacts, of structures and infrastructures, to put the new elements (and to reorganize the present

ones) necessary to follow the logics of *environmental quality* and *production sustainability*.

## 6. Conclusions: the present situation

By the analysis of the Italian situation some aspects of the spatial organization of production that distinguish it by part of its European partners are uderlined; the Italian context is characterized by a large majority of industrial small and medium firms, that directly descend from the preceeding manifacturing and artisan activities, typical of the different places.
Still now the survival of these firms is connected to the stability of their internal market, privileging small dimensions and managerial flexibility for the exploitation of agglomerative economies, developed by the interaction among the plants, dispite of the tendency of enlargement of productive strucutures dimensions, with the extension of their operative net to an international level, and of markets globalization.
So the starting point of the analysis must be the *Industrial District*, a consolidated situation in Italy[18], whose conditions allow to realize a process of reorganization of limits and opportunities for the environmental management.
But the development of the right evaluation and analysis tools of environmental characteristics of ecosystems, in particular aimed to a correct preliminary study of limits and conditions of the industrial activities settlement, must consider the whole aspects of this matter.

The EEC Regulation n. 1836/93 about an ecomanagement and audit system of the Community (EMAS) fixes its points and aims for the realization of sustainable development, through the guardianship of the environment by the prevention of production damages, following the principles (expecially the consolidated "who pollutes pay") of the Maastricht Treaty and of the *Fifth environmental program* of European Union (1993).
So the intervention follows the new philosopy of integration between economy and environment, by promoting action lines focused in particular on a rational management of resources, on the reduction of polluting factors and of production of externalities and on the development of cleaner technologies, recognizing the direct responsibility of firms but also the necessity to create stimula and incentives for a more efficient plan of global action.
But the *environmental audit*[19] procedure of the Community, characterized by its being voluntary (according to the new generation of tools) and aimed at the production sites of

[18] In Italy the legal acknowledgement of Industrial Districts has been operated with the Law n. 317 of 5/10/1991 and the following Decree of the Ministry of Industry of 21/4/1993, that describe the rules and the parameters for the Regions to identify the Industrial Districts.

firms, seems not to be suitable for a situation in which the aim is to realize integrated environmental management systems at the level of Industrial Districts.

The EIA is the more suitable instrument to carry out complete and integrated environmental analyses of industrial location areas. However, one of the most evident limits of the current European legislation about the EIA (and of its Italian implementation) is its partial implementation. In fact the implementation of the EIA is compulsory only for a small list of works. As regards the other works which are not included in the list, UE Member States are given ample discretion.
In Italy the selection of the works subjected to the application of the EIA is made up in relation to their "dimensions", that in theory should also represent their potential impact; but this approach neglects the fundamental aspects of localization of the project and of the impacts of the characteristics of the work (Prezioso, 1995).
But the EIA, not to become only an administrative procedure, should be used as a preliminary procedure of evaluation for all the decisions about the realization of infrastructural works or of localization and relocalization of industrial activities (and economic activities in general).

The proposed model, suitable for its simplicity to each context with the described characteristics, could be successfully applied expecially in those areas of industrial production with some elements of integration, typical in the Italian context.
In fact, the exploitation of the external economies seems to be the only way through which small and medium firms can follow the new rules of sustainability, and prevent their future evolutions.
However, it's very important that the limits of the present trend of environmental management, based on the single site of production, are internationally recognized, to extend the logics of analyses and tools to a level more suitable to the realization of compatibility between environmental quality and firm quality.

[19] The International Chamber of Commerce and the European Commission define the *environmental audit* as an instrument of management that requires a systematic, documented, recurrent and objective evaluation about the way firms manage and face environmental problems.

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