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Strategic Environmental Assessment (SEA) of Rural Development Programs in the European Union – Towards a More Efficient Monitoring of the Environmental Effects of Agricultural Policies

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1. Introduction

It could be asked why a volume dealing with rural development finds it useful to dedicate a special chapter to the Rural Development Programmes (RDP) in the European Union and the Strategic Environmental Assessment (SEA) applied to these special programs.

In the introduction to the present chapter we would like to answer this question by explaining the challenge that the RDP and the SEA together could present to European countries regarding the environmental sustainability of development in rural areas.

It is a difficult challenge and we hope, albeit not completely convinced, that it could be largely overcome in the next few years. It will become clear in the following pages that many methodological, technical but above all political obstacles must be overcome in order to enable the RDP to display its considerable potential and the SEA to achieve environmentally positive effects on agricultural policies all over the European Union. Only after 2013 it will be possible to assess the true environmental results of the money spent by the Structural Funds on the rural areas in the 27 European countries. The effects obtained by these two programming periods (2000-06 and 2007-13), when the use of particular tools to improve environmental quality in rural areas was mandatory, will be important for the future of the whole planet: if the strong initiative displayed by the European Commission in this direction, through financing and through technical directives, is unsuccessful, it is probable that this policy will have no future in non-European countries, which could be seen as a heavy defeat for environmental protection and valorization as well.

* This chapter illustrates the results of a research project carried out jointly by the four authors under the scientific coordination of A. Spaziante. The text is also the result of a collaborative work; in particular, AS drafted sections 1 and 4; CR drafted sections 3.1, 3.2 and 3.4; MC drafted section 3.3; CM drafted sections 2.1 and 2.2

We can begin by stressing that the starting-point must be the general aim defined by the European Commission as “territorial cohesion,” i.e. a common responsibility that has to be shared by both Member States and the Union and reflected in European policies on the necessity to boost growth and create jobs according to the Lisbon Strategy, and to improve sustainability according to the Göteborg strategy.

For this reason the European agricultural policy has been amended over the last few years to improve the concepts of sustainability, multifunctionality and competitiveness, and the Structural Funds offer the financial tools to support the application of these concepts.

A second main focus is on the tools developed to pursue environmental sustainability, assessing every program and plan - RDP included - to verify that it complements the fundamental EU strategy for development sustainability.

The new policy recognizes that rural development has an important role in confronting new challenges such as climate change, water management, bioenergy and biodiversity. More funding has been diverted from production subsidies towards targeted measures which will improve biodiversity, contrast climate change, increase the use of alternative energies, improve water quality, etc. Through the new Common Agricultural Policy (CAP) the European Commission has encouraged Member States and their Regions to offer incentives to farmers to make environmental improvements.

In this perspective, if forest and agricultural soil loss is the most direct and measurable environmental effect, the agricultural land use changing can be seen as a strong reflection of the new Common Agricultural Policy effect.

The necessity for positive results in this direction pushed the European Commission to obtain and to enforce the use of special tools able to insure these effects such as SEA.

The chapter will stress that it is necessary to take advantage of the integration between these important tools introduced by the European Commission (RDP and SEA) in order to steer rural area development and to correct the effects on the environment of the Common Agricultural Policy so as to make better places that are valued and have identity. This is an enduring ambition of planning and the reason why the major challenge of spatial planning is to find solutions for a more sustainable millennium in the rural as well as in the urban areas.

Aiming to diffuse knowledge about the long-term work going on in the European countries to achieve sustainable development even in rural areas, the chapter will expose in detail the European CAP's new strategies and give an example of the SEA for the RDP of the Piedmont Region (Italy).

Before beginning the detailed exposition of the CAP strategies and the Piedmont Region SEA for the RDP, we think it helpful to recall some of the main elements in the process that led to the definition of the SEA of plans and programs: as this procedure is not explained in other chapters of the book, and it is an innovative tool endowed with many interesting methodological and technical aspects, it worths consideration here.

SEA was drawn up and officially introduced into European legislation through Directive 42/2001/EC, but the concepts and general framework predate the Directive: in 1992, on the

occasion of the Earth Summit in Rio de Janeiro, the journal *Impact Assessment and Project Appraisal* published a monographic issue on strategic assessment, proposing an initial organization of the studies in question.

In 1992, Thérivel and other authors were the first to define the SEA as “a formalised, systematic and complete process for assessing the environmental effects of a policy, of a plan or of a program and of its alternatives, which includes the drafting of a report on the results of the assessment and which takes these results into account in a public and responsible decisional process,” (Thérivel et al., 1992) highlighting that the assessment process must be appropriately structured and based on negotiation and social interaction practices.

Towards the end of the 1990s, with the enactment of Community Regulation No. 1260/1999, SEA was officially introduced into the Community’s legal framework, but its implementation was limited only to the programs and plans supported, during the five-year period 2000-06, by the European Structural Funds.

As mentioned earlier, the definitive procedure for the assessment of plans and programs, through the adoption of Directive 42/2001/EC, was officially introduced into the European legal framework in 2001.

The Directive extended the environmental assessment process to all plans and programs with significant effects on the environment, to be initiated immediately after the decision to undertake a new plan/program and before the plan/program adoption. We should stress at this point that the main innovative aspects of the SEA originate from two basic considerations: the observation that sustainable development objectives can be pursued more effectively by integrating the environmental aspects “upstream” and not “downstream” of the decision-making process and the awareness that the search for solutions compatible with the environment depends on the degree of involvement of the different partners concerned.

SEA's objectives and role in the European Union are openly stated in article 1 of the Directive: “The objective of this Directive is to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development, by ensuring that, in accordance with this Directive, an environmental assessment is carried out of certain plans and programmes which are likely to have significant effects on the environment.”

From July 2001 each Member State had four years time to incorporate the new Directive into the national laws related to either environmental protection or planning processes or (better) both of them, but we must note here that many countries (Italy among them) delayed the transposition of the Directive with negative consequences in terms of methodological progress as well.

Through the “toolbox” offered by the Strategic Environmental Assessment procedure, the paper goes on to suggest the integration of agro-environmental and landscape indicators to describe, measure and monitor the effects of the new programming cycle of rural development for sustainable regional growth.

2. The CAP and the new EU strategies for agriculture: The day after the Lisbon Strategy

Why is the Lisbon Strategy so important for the development of rural areas? The answer requires the provision of some figures. Rural areas cover 90% of the territory of the European Union and are home to approximately 50% of its total population. Agriculture and forestry are the main uses for land and play a key role in the management of natural resources in rural areas and in determining the rural landscape. Agriculture makes a valuable contribution to the socio-economic development of rural areas and enables the full realization of their growth potential.

The wider contribution of agriculture to the prosperity of the EU is considerable. The agri-food sector (including beverages) accounts for 14.2% of the total EU manufacturing output, with production worth €675 billion. It is the third largest employer in Europe and the second biggest exporter of foodstuffs globally, with agricultural exports worth over 62.000 Millions of € in 2005. (EC, 2011)

European citizens are deeply attached to the diversity of the European landscape, which has been created by the wide variety of agricultural structures and types of farming in the EU. Safeguarding this diversity means investing in the future, creating new employment possibilities and encouraging rural diversification. People must be offered opportunities to create wealth as well as long-term rewarding job prospects. That is why the Lisbon Strategy is as relevant to rural areas as it is to urban Europe.

On 2 February 2005, the European Commission re-launched the Lisbon Strategy. This strategy seeks to tackle the EU's urgent need for increased economic growth and job creation and greater competitiveness in the world markets. It is a major EU policy priority. The Lisbon Strategy aims to provide people with a better standard of living in an environmentally and socially sustainable way.

The guiding principles for the contribution of the CAP to the Lisbon Strategy were set by the European Council in Göteborg in 2001 and confirmed in the Lisbon Strategy Conclusions in Thessaloniki in June 2003. These principles are *strong economic performance* that goes hand in hand with the *sustainable use of natural resources*.

Without the CAP, many rural areas of Europe would face major economic, social and environmental problems. Rural development measures, in particular, can play a significant role in fostering and maintaining prosperity in rural areas. The CAP will continue to make a concrete contribution to increasing growth and jobs in the future.

The CAP has been undergoing a process of reform since the early 1990s. These reforms have focused mainly on increasing the competitiveness of agriculture by reducing support prices and compensating farmers through the introduction of direct aid payments. A decisive step came in the 2003/2004 CAP reform with the decoupling of direct aids from production and the realignment of the CAP with consumer concerns. This reform was a key step toward a more market-oriented and sustainable CAP.

The new CAP, post 2003/2004, constitutes a fundamental contribution to the Lisbon process. It places the emphasis on market orientation rather than market support. It removes many of the negative incentives of the old CAP. A more entrepreneurial approach will require a change in the culture and working habits of many organizations and will require support

and encouragement (both political and financial). This will remain a major challenge in the coming years. For these reasons, the instruments of rural development will grow in importance.

2.1 Sustainable rural development: The “green” side of the second pillar of the CAP

Rural Development Programming 2007/2013 constitutes the second pillar of the CAP. Rural development can be considered to be the key tool for the restructuring of the agriculture sector, and for encouraging diversification and innovation in rural areas. The enlargement of the European Union has changed its agricultural map. Rural development policy can help to steer this process toward a more value-added, flexible economy, in line with the Lisbon Strategy.

In all Member States, rural development can help to promote competitiveness in the agricultural and food processing sectors. The Rural Development Regulation sets out the legal framework within which the RDP must operate. The Rural Development Policy 2007-2013 focuses on three areas in line with the "three axes" of measures laid down in the new Rural Development Regulations (Axis 1: Improving the competitiveness of the agriculture and forestry sectors; Axis 2: Improving the environment and countryside; Axis 3: Rural quality of life and diversification of the rural economy; and the Axis Leader, which operates across Axes 1, 2 and 3). Axis 2 in particular provides measures to protect and enhance natural resources, as well as to preserve high nature value farming and forestry systems and cultural landscapes in Europe's rural areas. To this end, the European Community's strategic guidelines for rural development suggest that resources devoted to Axis 2 contribute to three EU-level priority areas: (i) biodiversity and preservation of high nature value farming, forestry systems and traditional agricultural landscapes; (ii) water; (iii) climate change.

The provision of environmental goods, particularly through agri-environmental measures, can form a basis for growth and job creation through tourism and rural amenities. There is particular scope for innovative approaches that add value to the rural economy by remunerating farmers for environmental services and linking these to diversification into tourism, crafts and training. Similar linkages can be made in the non-food sector. The adoption of particular farming techniques can improve the economic and environmental performance of farms. Environmental projects, including the management of Natura 2000 sites¹, can provide important spin-off effects by acting as demonstration/tourism/training projects.

2.2 Rural territories undergoing “greening growth” through Strategic Environmental Assessment

As green growth may well become the growth paradigm for the 21st century, policy makers require policy tools in order to address this challenge.

¹ *Natura 2000* is an ecological network of areas with high natural value in Europe. Its foundation are the Bird Directive (Council Directive 2009/147/EC on the conservation of wild birds) and the Habitats Directive (Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora)

SEA constitute one of these tools. SEA is an analytical and participatory approach for incorporating environmental, social and climate change considerations into plans and programs. Within the “programs” category, according to the Directive 42/2001/EC on SEA, RDP must be accompanied by an SEA process. SEA is used to safeguard the quality of information, participation, transparency and accountability of strategic planning. Originally designed as an extension of environmental impact assessment (EIA), the most commonly used assessment approach at project level across the world, SEA has developed in a more strategic direction, responding to the different needs which politicians and governments have at the strategic level.

The aim of SEA is to integrate a continuous process of fact-finding and a dialogue between civil society and the private sector into planning and policy-making, aiming to influence decision-making for the purposes of environmental and social sustainability.

The objective of the SEA process is to provide a high level of environmental protection and to contribute to the integration of environmental considerations into the preparation and adoption of RDP. According to Dalal-Clayton and Sadler (2005), SEAs of plans and programs “promote and further develop methodologies at policy, strategy and project levels for sustainable development decision-making.” SEA is an instrument or, more precisely, a process that assists and facilitates decision-making. It acts at the strategic level of decision-making and aims to promote an integrated approach, taking into account the economic, social and environmental dimensions of sustainable development. Its goal is to analyze a variety of alternative development scenarios and to predict their cumulative environmental and social effects, considering the legal and institutional backgrounds of countries. The process involves an analysis of the probable effects on the environment, recording these effects in a report, undertaking a public consultation exercise concerning the report, taking into account the comments and the report and informing the public about that decision afterwards.

SEA can enhance the greening of rural development by:

- providing data and an analysis of the capacity of natural resources and environmental services;
- highlighting institutional and governance gaps or constraints affecting environmental and social sustainability;
- promoting capacity-building and the institutional, legal and regulatory adjustments which are critical for the environmental and social sustainability of sector reforms;
- strengthening accountability in the management of environmental and social risks by increasing transparency and empowering weaker stakeholders belonging to the rural world.

According to Regulation 1698/2005/EC on support for rural development, the environmental assessment required by the SEA Directive shall be integrated directly into the broader ex-ante evaluations of RDP. The strategic aim of SEA is to focus on hypothetical limits, opportunities and alternatives and to reach a consensus on a preliminary definition of the criteria and the possible options for the sustainable development of the territory (Partidàrio & Clark, 2000; Fischer & Seaton, 2002).

The structure of SEA for rural development is based on the following macro-phases:

- "screening": an investigation of whether the plan or program falls under the SEA legislation;
- "scoping": defining the boundaries of investigation, assessment and the assumptions required;
- "documentation of the state of the environment": collection of baseline data on which to base judgments;
- "determination of the likely (non-marginal) environmental impacts" with the support of the common monitoring and evaluation framework (CMEF) for rural development and its set of indicators;
- informing and consulting the public;
- influencing "decision-taking" based on the assessment;
- monitoring the effects of plans and programs after their implementation.

If, on the one hand, we can say that the principles that underpin the concept of SEA have been acknowledged, the implementation of the SEA Directive in rural development represents a significant challenge for Member States. Through SEA, it should be possible to incorporate the principles of sustainability into the policy-making and programming process, to discuss alternatives while options are still open, to anticipate problems and to encourage politicians towards the integration of environmental and sustainability issues into their decision-making.

3. Case study. The SEA of the RDP of Piedmont region: Key emerging issues

In the following sub-sections, we provide background information on the RDP of the Piedmont region and the associated SEA process; we then present and discuss key findings in relation to the following emerging issues: (i) environmental indicators and monitoring; (ii) the spatial distribution of agri-environmental measures; and (iii) the integration of agricultural policies and spatial planning at the regional level.

3.1 Background information

Piedmont is a region in North-West Italy, with an area of 25,402 km², a population of 4,453,000 and a total agricultural area (TAA) of 10,683 km². The RDP classifies the regional territory into four main areas (Figure 1):

- *Urban centres*, comprising major urbanized areas, where agriculture has a relatively marginal role and is under pressure from the demands of urbanization. These areas account for 17% of the total regional area, 62% of the total population and 20% of the TAA;
- *Intensive agricultural rural areas*, located in the fertile plain land of the Po Valley. Here, agriculture is characterized by intensive production processes and high chemical inputs. The main products include cereals, rice, horticulture, fruits and cattle. These areas account for 17.3% of the total regional area, 13% of the population and 31% of the TAA;
- *Intermediate rural areas*, mainly comprising hilly territories characterized by specialized agriculture (orchards and vineyards) integrated with other activities such as agri-tourism and catering. They account for 22.7% of the total regional area, 14% of the population and 23% of the TAA;

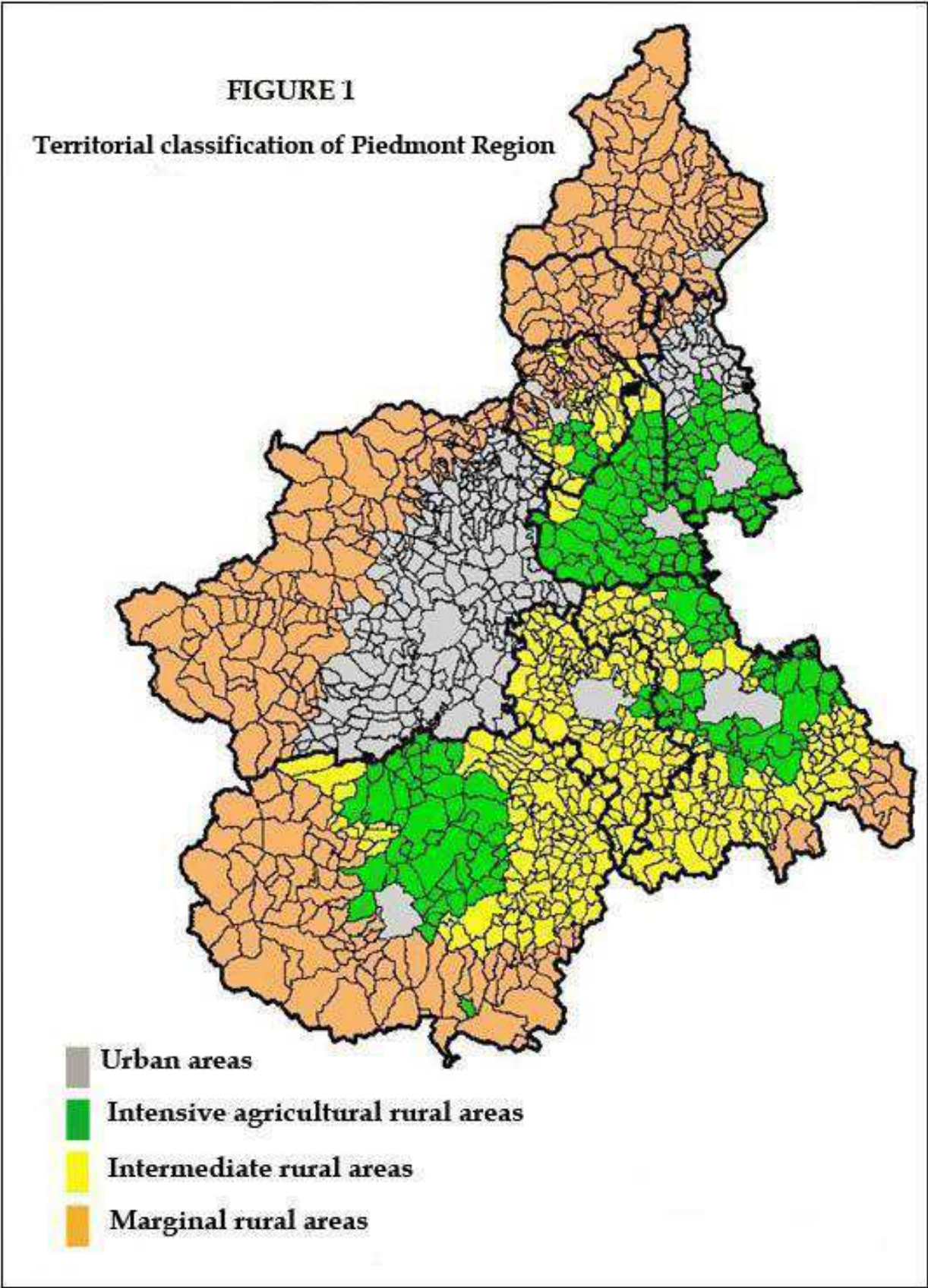


Fig. 1. Territorial classification of Piedmont Region

- *Marginal rural areas* are mainly mountain territories with comparatively lower levels of accessibility and socio-economic development. These areas account for 43% of the total regional area, 11% of the population and 26% of the TAA.

The RDP 2007-2013 underwent the formal SEA process pursuant to European regulations within the broader ex-ante evaluation; the environmental report (ER) was completed by April 2007. Despite not being required by EU regulations, the Regional Authority decided that the environmental assessment would be carried out also during the implementation phase of the RDP, and that an updated version of the ER was to be elaborated on as part of the broader mid-term evaluation report, to be concluded by December 2010. The mid-term SEA was therefore set the task of extending the objective of the mid-term evaluation – to improve the quality of the RDP and its implementation by assessing the degree of utilization of resources, the effectiveness of the programming and its socio-economic impact – to cover environmental aspects as well. The ongoing SEA was conducted in the period from September 2009 to December 2010.

The SEA was therefore carried out following a political decision by the RDP management authority, and was not the result of EU obligations. This allowed the use of a more flexible approach: not all of the formal requirements for an ER were met, whilst other aspects received greater attention. The elaboration of strategic alternatives, for instance, was not considered, as there was no room for radical changes in the approved RDP. Conversely, on the basis of the specific needs of the Management Authority, some issues emerged as critical and were addressed within the SEA and the broader mid-term evaluation.

With regard to the assessment phase, a co-evaluation approach was used for the elaboration of the ER, with a mixed methodology comprising: (i) three focus groups (FGs) one for each axis of the RDP; and (ii) specific semi-structured interviews.

The FGs included all of the key persons in the regional authority who were involved in the program implementation, as well as the staff in charge of the elaboration of the mid-term ER and the SEA consultants. They were organized in order to foster inter-organizational communication and the exchange of information and knowledge, and to gather broad information on an array of relevant issues to be examined in more depth through semi-structured interviews with key civil servants in charge of the implementation of the main measures of the RDP.

The semi structured interviews were designed as follows: the SEA team prepared an “assessment matrix,” matching the specific actions envisaged by each measure of the RDP with a set of identified environmental components, namely: (i) air quality and climate change; (ii) energy; (iii) soil loss; (iv) water (quality and consumption); (v) ecosystems and biodiversity; and (vi) landscape and cultural heritage. The matrix was sent to civil servants some days before the scheduled interview. This method proved useful in that it provided an opportunity to combine the expertise of the SEA team with the expertise of the civil servants for the identification and assessment of possible environmental effects determined by the measures and actions of the RDP. During the semi-structured interviews, ideas for feasible innovations in the data collection system concerning applications for funding by potential beneficiaries emerged and were part of the final recommendations included in the ER.

3.2 Environmental indicators and monitoring

Monitoring is a key element of SEA processes, as established by Art. 10 of the SEA Directive. The European Commission provides a single framework for monitoring and evaluating all RDPs for the programming period 2007-2013, the so-called CMEF (see section 2.2), developed in accordance with the Member States and pursuant to Council Regulation n° 1698/2005. The CMEF establishes five types of indicator, namely:

- **Baseline indicators.** These are used in the definition of the program strategy. They fall into two categories:
 - *Objective-related baseline indicators*, which are linked directly to the wider objectives of the program and are used as the reference against which the impact of the program will be assessed;
 - *Context-related baseline indicators*. These provide information on relevant aspects of the general contextual trends that are likely to have an influence on the performance of the program.
- **Input indicators.** These refer to the budget or other resources allocated at each level of the assistance, and the progress of payments to beneficiaries;
- **Output indicators.** These measure activities which are realized directly within the program and which are measured in physical or monetary units (e.g., the number of farms receiving investment support);
- **Result indicators.** These measure the direct and immediate effects of the intervention. They provide information on changes in, for example, the behavior, capacity or performance of direct beneficiaries and are measured in physical or monetary terms (e.g., the number of jobs created);
- **Impact indicators.** These refer to the benefits of the program beyond the immediate effects on its direct beneficiaries, both at the level of the intervention and also more generally in the program area. The full list of impact indicators of the CMEF is presented in the following table.

	Indicator	Measurement
1	Economic growth	Net additional value added
2	Job creation	Net additional full time equivalent jobs created
3	Labour productivity	Change in gross value added per full time equivalent (GVA/FTE)
4	Reversing the decline in biodiversity	Change in the declining trend in biodiversity as measured by farmland bird species populations
5	Maintenance of high nature value farming and forestry areas	Change in high nature value areas
6	Improvement in water quality	Change in gross nutrient balance
7	Contribution to combating climate change	Increase in production of renewable energy

Table 1. List of impact indicators of RDP established by the CMEF.

As the table shows, the impact indicators as envisaged by the CMEF are limited in number and quite straightforward in their definition. The CMEF also foresees that Member States may provide additional indicators “[s]ince common indicators may not fully capture all effects of programme activity [...] Such additional indicators should be developed by Member States and programme partnerships in a flexible manner, but in accordance with the general principles governing the use of indicators in the CMEF” (EC, 2005: 8). These general principles state that for program monitoring to be feasible and cost-effective, the focus must be on a limited number of objectives and the related indicators (EC, 2006: 8). In fact, Art. 81 of Council Regulation n° 1698/2005 specifies that Member States may “specify a *limited* number of additional indicators” (EC, 2005: 6, emphasis added).

The rationale of the European Commission for developing the CMEF is clear: to have a single framework for the entire EU which facilitates quantitative comparison between Member States. The specificities of each RDP may be addressed by additional indicators; but, these must be limited in number and easily measurable in a standardized way.

However, when the environmental effects of several measures of RDPs are assessed in greater depth, a trade-off can be identified between the straightforwardness and comparability of indicators versus their robustness in ecological terms and their capability of covering the entire spectrum of the environmental effects of the RDP.

With regard to the first point, it has to be noted that while output and impact indicators of environmental measures expressed in quantitative terms such as “Total area under agri-environmental support” or “Number of farm holdings and holdings of other land managers receiving support” undoubtedly provide straightforward information, the “impact” associated with a certain intervention is a function of both the magnitude of the intervention itself (which is the parameter monitored with the indicators of the CMEF) and the characteristics of the recipient of the action. The same quantitative reduction in the input of nitrates into the terrain will have a different net impact if it occurs in a nitrate-vulnerable area where the groundwater is very close to the soil surface than in a less vulnerable area. In the same way, the effects of maintaining a certain land area as a habitat which is conducive to biodiversity on the ecological functionality of the area depends largely on the relationship between this area and its surroundings: the positive effects will be maximized if the area is close to, or part of, a corridor or a core area of the ecological network. Conversely, the effects will be smaller – the total area in question being equal – if it is a fragmented patch with no spatial relation to other natural sites. As it will be discussed more in detail in the next sub-section, when assessing the environmental effects of an agri-environmental measure, considering only the total area or the total number of actions may lead to miss important elements which will determine the overall environmental impact of a measure. A need to deepen the assessment arises: examples of how this was done in the present case study are illustrated and discussed in the next sub-section, focusing on the spatial analysis of selected measures of the RDP.

With regard to the second issue – the coverage of the different environmental aspects affected by the implementation of the RDP – the SEA process showed that some key environmental aspects affected by, or strongly related to, agriculture are only very partially covered by the basic set of environmental impact indicators devised by the CMEF. Two

issues in particular are neglected, namely *soil loss* and *landscape preservation*. These are recognized at the EU level as key themes shaping the relationship between rural development and sustainability.

Soil loss occurs when a portion of soil undergoes a transformation that nullifies its capacity to provide ecosystem services, in particular to absorb water, fix CO₂ and release O₂; typically, this occurs when a natural or agricultural area is urbanized. Urban sprawl is the cumulative outcome of the scattered processes of urbanization that determine soil loss and it is, according to the European Environmental Agency (EEA), an “ignored challenge” within the EU (EEA, 2006). It is not a simple task to establish the net effect of the RDP on this phenomenon: on the one hand, some measures finance the building of new agricultural facilities which directly contribute to soil sealing; on the other hand, by supporting farming activity, the RDP provides means for rural areas to “resist” the pressures of urbanization from urban areas. During the SEA process, the need to monitor this particular aspect and the contribution of the RDP in contrasting or fostering it was put forward as a desirable improvement in the monitoring framework for the next programming period.

The rural landscape in Piedmont has been subject to relevant transformation over the recent decades, not only due to changes in the agricultural sector (such as the introduction of new cultivations), but also as a result of increasing urbanization. The SEA process stimulated some reflections on the dynamics and trends that interested the regional rural territory: in particular, peri-urban areas at the fringe of the urban territories underwent a heavy “de-ruralization” process that turned them into hybrid territories in which urban and rural features are mixed together and are not always easily recognizable. As a result, the zoning described at the outset of this section, and which descended from the European Regulations, was somewhat contrived.

One of the outputs of the mid-term SEA was the identification of all of the actions of the RDP that may have an effect on the landscape (an exercise that was not carried out during the ex-ante SEA). Landscape is conceived as “an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors” (COE, 2000). Landscape, which is associated with architectural and historical heritage, was one of the six evaluative dimensions that comprised the assessment framework (see the beginning of section 3), meaning that each measure and action was also assessed in relation to its potential capacity to alter, deteriorate, restore or valorise existing landscapes, which in turn are conceived as the entire set of physical, natural, perceptive, cultural and historical features of Piedmont.

It emerged that a large number of measures and actions can affect landscape (as previously defined), both positively and negatively, often as a result of indirect or unintended effects. However, notwithstanding several measures of the RDP are designed to pursue landscape preservation and enhancement, no specific reference is made to landscape in the CMEF. In fact, the consideration of the landscape component in the monitoring of the RDP has long been deemed too complex to address, and although some tentative indicators were considered in the previous programming period (2000-2006), the European Commission and Member States decided not to include it in the current CMEF.

Whilst quantitative approaches which are able to grasp the perceptive dimension of landscape are far from being widely accepted and consolidated, the increasing attention

which has been paid to landscape preservation policies over recent years has driven research on the identification of landscape indicators, particularly after the European Landscape Convention came into force (see, for example, Cassatella & Peano, 2011).

Building on the hypothesis that linking agri-environmental policies and landscape preservation policies mutually enhances both of them, we maintain that in light of the scientific advancements and the accumulation of experiences and evaluation in this field, the elaboration of additional landscape indicators appears to be desirable, useful and feasible and represents an interesting field of research. Further reflections on this point are put forward in the conclusions section.

3.3 Spatial analysis of environmental measures

As described in Section 3.2, the CMEF is the set of indicators by which Member States monitor the performance of their RDPs and their environmental effects. As an evaluation tool on a European scale, the CMEF does not always capture some specific aspects of each country or region, and therefore it has been suggested that it may be beneficial to include additional indicators on a local scale in order to enhance the data provided by the baseline indicators.

One of the aspects for which it has been possible to verify the effectiveness of RDP in terms of environmental monitoring is the spatial distribution of applications which are granted financing. The only quantitative parameter (the area of the land on which the measure is applied) does not always provide the true effectiveness of a measure, especially from an environmental perspective: the hectare extension of a measure has different effects on the environment when activated in a priority area rather than in one which is considered to be less environmentally sensitive. In this regard, within the Environmental Report prepared for the mid-term evaluation of the Piedmont region RDP 2007/2013, an analysis of the geographical distribution of some key actions was carried out in order to verify the degree of consistency between the program objectives in terms of spatial priorities established by the managing authority (the Regional Department for Agriculture) before and during the preparation of application's call for bids, and the actual localization of financed actions. In fact, for several measures, the managing authority identified priority target areas, such as nitrate- and pesticides-vulnerable areas,² protected areas and Natura 2000 sites, and assigned higher scores to applications that fell within such areas. A crosscutting check was carried out on all the axes of the program in order to assess the spatial distribution and the related effects not only of agri-environmental measures, which by their nature are activated in order to support and improve the environmental quality of rural areas, but also to observe the distribution of certain pivotal measures of Axis 1 (improving the competitiveness of the agriculture and forestry sectors) which, if not carefully monitored, could have significant environmental effects on rural areas.

For the measures of Axis 2, the study of spatial distribution was therefore carried out in order to verify the actual effectiveness of various measures. In particular, the pivotal

² Nitrate-vulnerable areas are identified by the Piedmont region as being established by the EU Directive 91/676/ECC and Directive 2009/128/CE.

measure 214, “Agri-environment payments,” is articulated in various actions and sub-actions which differ in terms of their financial scope and the degree of response from beneficiaries, and features a spatial distribution for the 2010 campaign that shows interesting results.

For action 214.1, “application of integrated production techniques,” which pursues a significant reduction in the amount of chemicals being put into the ground, the administration’s will during the inquest drafting process was to target actions in sensitive areas, found mainly in agricultural areas of the plains. This will was confirmed by the inclusion of specific incentives in the call for applications of that action. However, for the 2010 campaign, all of the applications which were submitted received funding, thus rendering ineffective any selection mechanism. The “natural” spatial distribution that resulted from this was therefore driven more by economic factors relating to the individual needs of beneficiaries than by regional program guidelines. The spatial distribution of action 214.1 is presented in Figure 2 which shows a strong concentration of applications in areas which are not classified as priorities. A possible reason for this distribution lies in the obligation to rotate crops imposed by measure 214.1. Most of the farmers who applied to the actions were already practicing crop rotation, while in areas where monospecific farms (mostly maize producers) prevail, the payment associated with the action is not economically viable due to the reorganization of the farm’s activities that crop rotation would require. These considerations show that the goal of reducing the intensity of chemical inputs in relation to monocultures in plain areas by integrating farming techniques has, at present, been only partially achieved. In conclusion, a more cost-effective (in strictly environmental terms) implementation of measure 214.1 should involve more spatially targeted applications, as it is currently mainly adopted in areas which, by their nature, have crop types with a lesser impact and therefore need fewer corrective actions.

The reduction of chemical inputs is also an objective of action 214.2: “application of organic farming techniques” (Figure 3). This action targets the same sensitive areas as measure 214.1. In the spatial analysis for the 2010 campaign, the results are far from the set targets, and almost all of the approved applications are located in areas which are not identified as priorities. This analysis in fact highlights that only 25% of the land which is affected by the action falls within priority areas. Similarly, the analysis of the distribution within the four main areas shows that, while the program aimed to concentrate on “intensive agriculture” areas, there is a higher incidence in marginal rural (mountain) areas, to which a low priority was assigned. In addition, in this case, the call for application of the action received greater response in those areas which, by their nature, present crop types requiring less chemical inputs, and less of a response where it would have had a higher positive environmental effect.

Action 214.4 (arable reversion to permanent grassland), can produce several beneficial environmental effects, from reduction of chemical inputs to preservation of soil quality and rural landscape. This measure raised great interest among beneficiaries in the 2009 and 2010 campaigns. The reason for such success is probably to be found in the combination of two purely economic factors: the award value, which was the highest allowed by the regulations for this class (€350/ha), and the poor performance in the market associated with sowable land that has led many farmers to switch production to permanent grassland.

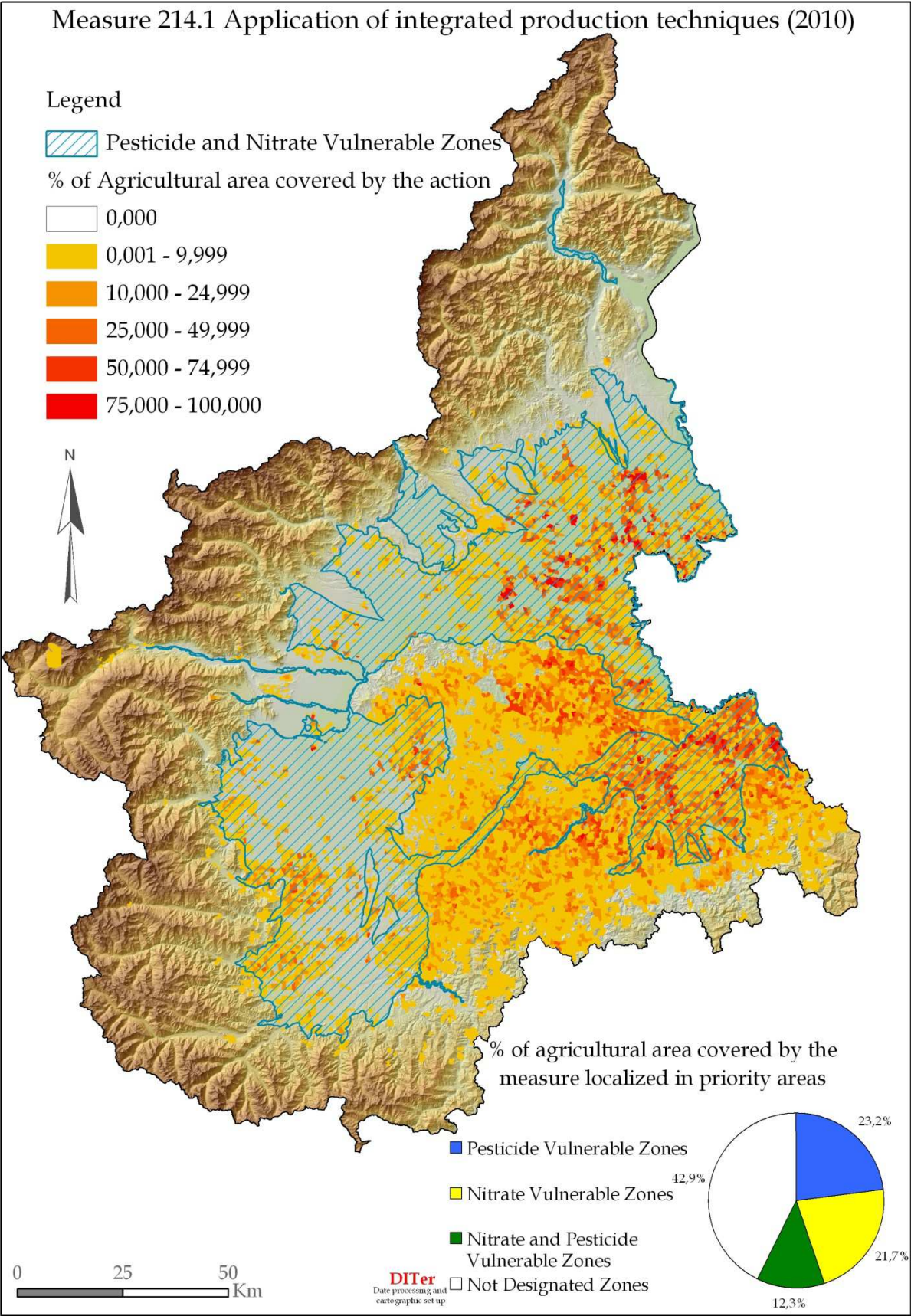


Fig. 2. Spatial distribution of Measure 214.1: *Application of integrated production techniques*

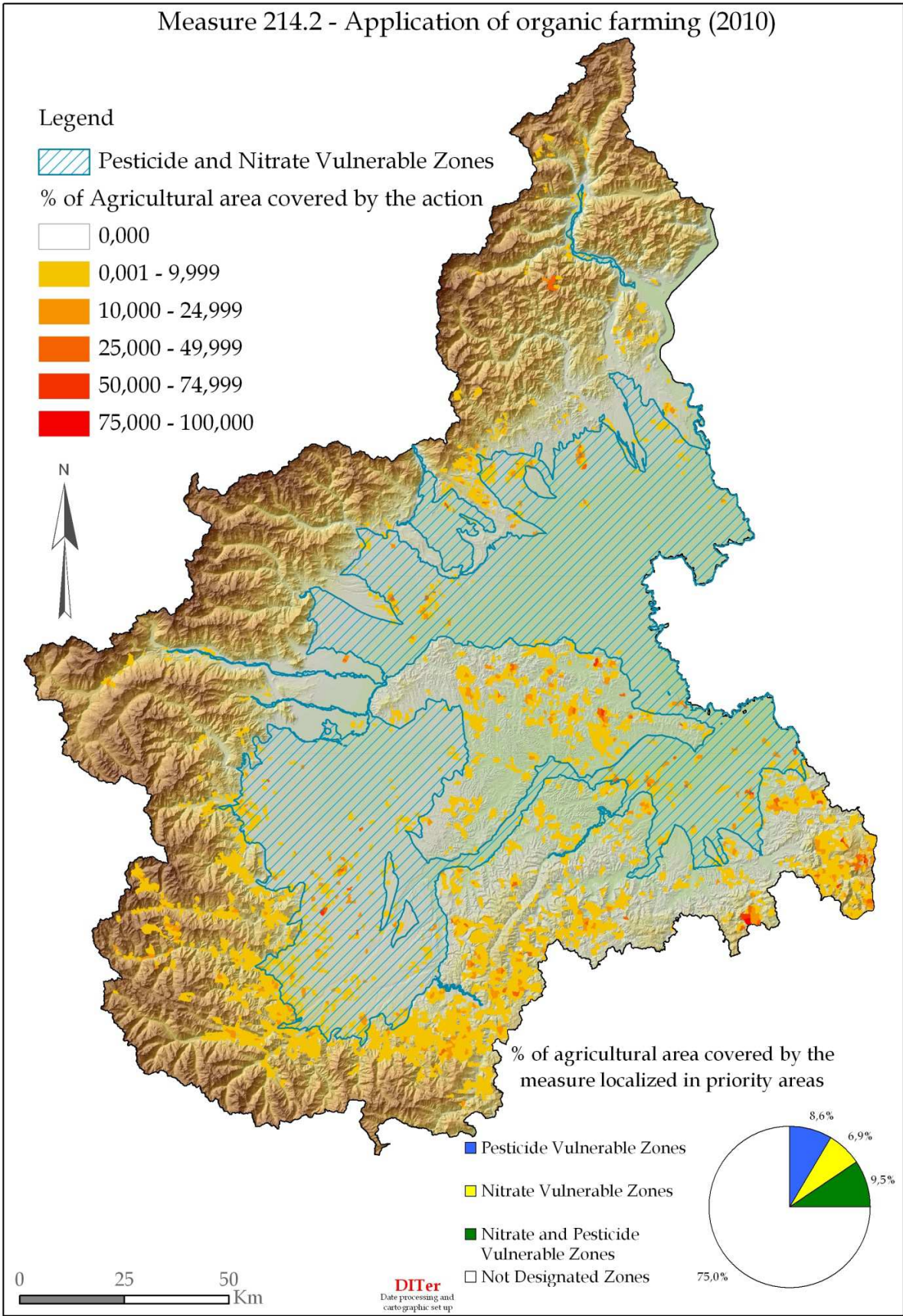


Fig. 3. Spatial distribution of Measure 214.2: *Application of organic farming*

Analyzing the results in terms of spatial distribution (Figure 4) shows that they are not entirely consistent with the program and implementation guidelines of the call for bids issued in 2010, because in this case, all of the technically eligible requests received by the managing authority were accepted, thanks to the guarantee of full-measure financing. The majority of these (about 45%) were concentrated in the "intermediate rural areas," within which the quality of the soil and rural landscapes is not at risk of deterioration, unlike the "intensive agricultural rural areas" or the "urban centres." Therefore, the registered result goes against the values recorded in the call for applications, in which urban areas and agricultural plains were assigned higher scores. In line with these results, including those relating to the localization of the applications accepted for funding, 8% of the total surface area was found within the protected areas of Piedmont (natural parks, natural reserves, etc.), whereas the regional TAA located within these areas is about 10% of the total.

These three examples summarize some of the problems that arose during the implementation of the current program, and in particular the difficulty experienced by the Piedmont region in providing satisfactory results to the EU as regards the geographical distribution of some of the most important agri-environmental measures, both from the point of view of environmental effects and also with regard to the economic significance provided by the program. The European Commission requires from Member States constant updates on the results achieved compared to the expected results, and the correct location is certainly a very significant parameter with which to determine whether the performance of a specific measure is in line with the expected results after the investment of considerable sums of money. If these results were disregarded, the signal would be interpreted by the Commission as a reason to question the usefulness of awarding such a measure in future programs.

It is very important that policy choices and their fulfillment, which is often subject to complex political mechanisms, result in stronger links in the future with the adopted payment system. Weighted mechanisms currently offer little incentive for those who must choose to reduce their economic gain in favor of virtuous farm management, based, for example, on the reduction of chemical inputs or the preservation of biodiversity, the soil or the rural landscape. This is probably because the reward mechanism and proportional compensation is not always favorable for the farmer who may, while agreeing with the measure's ethics, be forced to renounce it for economic reasons.

A second aspect that is important to note is the need to improve the effectiveness of communication with regard to the opportunities afforded by the RDP with regard to all possible beneficiaries operating in those areas which, due to their particular morphological characteristics, lend themselves to agri-environment interventions. From 2007 until today, the results of workshops and seminars prepared by the management authority in order to inform beneficiaries about the RDP program have revealed a widespread feeling of separation between those who work on the ground on a daily basis and decision makers. In particular, this problem was often linked to the role of farmers associations, which are historically the only reference to which farmers pay attention. Taking advantage of this special role, they tend to accommodate communication between their members which will highlight the content and benefits of certain measures for certain areas only; these measures are significantly related to the economic growth of farms. In order to improve the

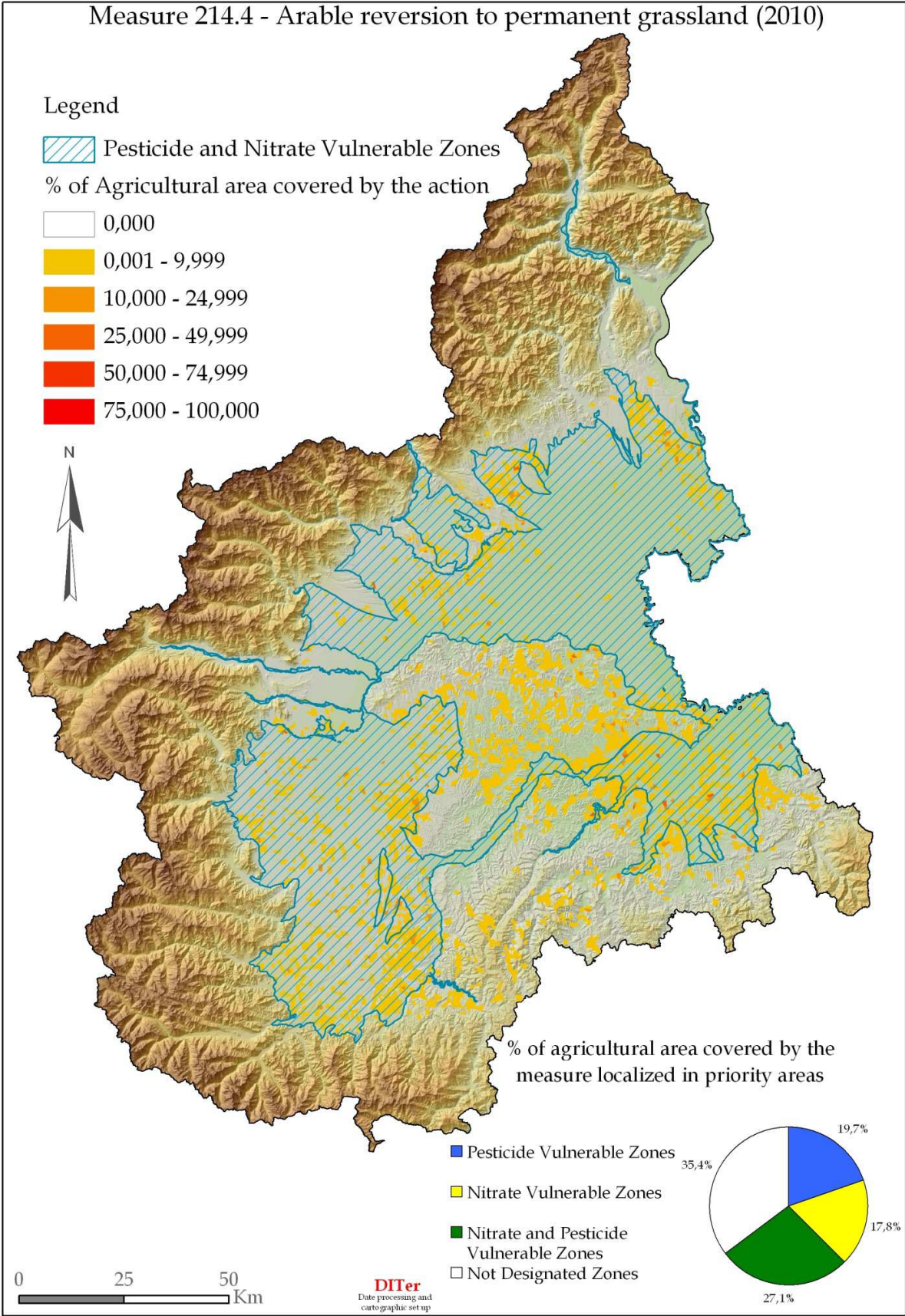


Fig. 4. Spatial distribution of Measure 214.4: *Arable reversion to permanent grassland*

effectiveness of the results of environmental measures, not only in quantitative terms, but also with regard to their spatial distribution, it is fundamental that the management authority enhance communication to relevant stakeholders to circulate the information about the possibilities offered by the RDP. This communication must illustrate the content of the actions and sub-actions that blend environmental ethics with rural development and the effectiveness of which would be much greater if applied in areas which are considered as priorities from the environmental point of view. This action would also allow the managing authority to collect information regarding the feelings, ideas and real issues that touch the daily lives of the beneficiaries by starting the slow process of mending the gap between politics and territory that has historically precluded the success of the program. The managing authority must raise the awareness of farmers in Piedmont that they are part of an RDP designed specifically for them and which is not something to be wary of or to rely on solely to modernize their agricultural machinery.

3.4 Agricultural policies and spatial planning: The need for environmental policy integration

The SEA Directive establishes that the Environmental Report must contain an outline of the content and the main objectives of the plan or program and its relationship to any other relevant plans and programs (Annex I). Within SEA processes, this is commonly done through two types of analyses – *internal* and *external coherence analyses* – which are aimed at verifying the degree of consistency between different actions within the same plan / program and their coherence with other relevant plans/programs elaborated by the same authority or with objectives and actions which may somehow affect the implementation of the plan / program under assessment respectively.

In the case of Piedmont region's RDP, the aim of external coherence analysis was to ascertain the degree of compatibility, integration and harmonization between its objectives and actions and the environmental and socio-economic objectives established by other regional plans/programs and European programs.

In the Italian context, this aspect is particularly relevant, as regional authorities were assigned a great many responsibilities as regards the government of the territory following a devolution process which culminated in 2001 with a constitutional reform which made Italy a semi-federal state, in which regions have high discretionary power over a number of issues including spatial planning, environment, health, energy, management of protected areas, transportation and SEA implementation (Rega, 2007).

The RDP is therefore part of a variegated, complex and dynamic framework made up of many different laws, regulations and plans/programs. Furthermore, regions are in charge of elaborating and implementing the programs which are co-financed by the structural funds of the EU, such as the RDP itself and transnational cooperation programs (in the case of Piedmont, cooperation with France and Switzerland).

Over the last decade, the regional system of territorial governance has undergone a significant shift from a hierarchical, command and control-based model toward a more cooperative one, based on the principle of subsidiarity. The regional government initiated a process of harmonization and integration of its instrument of territorial governance (plans and programs) in order to overcome the traditional fragmentation and

sectorialization of the administrative action. To this end, the Region elaborated the so-called *Framework of Territorial Governance*, gathering together the three main regional plans concerning spatial planning: the Regional Strategic Document, the Regional Territorial Plan and the Regional Landscape Plan, which all contain directives and guidelines for spatial planning, urban development and landscape/environment preservation for other sectors of the regional government (e.g., waste water, energy or management) and lower-tier institutions (provinces and municipalities). It is therefore essential within the SEA of the RDP to examine the relationship between the RDP and the *Framework of Territorial Governance*.

The results of this exercise showed that, overall, the structure of the objectives and actions of the RDP features a robust level of internal consistency; furthermore, no major incoherencies between the RDP and the *Framework of Territorial Governance* were identified. However, the results also indicate that potential and desirable synergies between the RDP and other EU-funded programs (such as transnational cooperation programs) are currently not being fully exploited, even though they concern to a large extent, the same areas (marginal rural areas: see previous section), and the same potential stakeholders.

With regard to the other sectoral plans of the Piedmont region, no incoherencies were found, but a deeper strategic integration between the different instruments which were examined is lacking in some cases. The strategic design of the objectives and actions of the RDP is indeed based on a detailed analysis of the regional context, which covers not only strictly agricultural aspects, but broader environmental and socio-economic ones as well. However, its implementation follows a sectoral rationale, meaning that its integration with other regional instruments has not been fully developed. This is partly explained by a key difference between the RDP and other relevant regional plans: the former is a programmatic instrument which allocates economic resources among a plurality of stakeholders (mainly farmers), while the latter are regulatory instruments – they establish rules and constraints for the transformation and/or preservation of the territory, and are not associated with a budget. This has important implications for how these instruments are elaborated and on their subsequent implementation: the allocation of economic resources and the establishment of regulations (which in the Italian context is the main difference between “programs” and “plans”) sometimes follow different rationales.

In addition, in the Italian context, agricultural policies have traditionally been developed by considering agriculture mainly in terms of its economic aspects and only to a minor extent in relation to its function in the transformation or preservation of rural territories. Farmers’ associations are long-established lobbies which, understandably, are devoted mainly to voicing the economic concerns of their affiliates. Although at the EU level there is now widespread acknowledgement of the environmental function of agriculture (see Section 2), changes in the attitudes of stakeholders operating on the ground are inevitably slower.

However, the urban/spatial planning discipline has traditionally paid relatively little attention to rural areas as well, which are often considered to be areas which are “not yet urbanized” rather than productive ones, or as potential biodiversity sinks and providers of ecosystem services. Only recently urban planning has fully recognized the intrinsic value of such areas and their importance from an ecological perspective.

Shifting the point of view from the elaboration and implementation of plans and programs to their environmental effects, a strict interrelationship between agricultural policies and spatial planning clearly emerges. The identification of environmental effects shows that almost all the environmental factors listed in the SEA Directive are affected by one or more actions of the RDP, either directly or indirectly. Some shortcomings of the implementation of some actions were also identified due to a lack of integration with urban planning instruments, e.g., with regard to the measure concerning “village renewal and development,” which sometimes conflicts with the building regulations established by municipal plans.

In conclusion, the actual interplay between agricultural policies and spatial and landscape plans call for a greater strategic, programmatic and implementation-oriented integration between different decision-making centers in order to overcome the traditional separation which characterizes complex structures like regional authorities. The holistic approach of the SEA, as envisaged by the Directive, can play a positive role in this sense.

4. Conclusions

As a general conclusion, we should first of all observe that many European countries delayed the incorporation of the SEA Directive into their laws and the Italian government was particularly late in doing so; only in April 2008 it was implemented in a new law about environmental regulations. This delay generally had a negative effect on the quantity and quality of the SEA application to “ordinary” planning and programming, but it must be stressed that this did not affect the SEA of the RDP that each country and Region, (in Italy each of the existing 20 Regions) had to develop in order to put forward an RDP to the European Commission: as a matter of fact, these special programs supported by the Structural Funds were in any case subject to the SEA and the 27 countries and the 20 Italian Regions had to present to the European Commission all the RDP equipped with a SEA.

Nevertheless we should add that the concepts and technical contents of the SEA are not always correctly applied for the proper purpose. Often the procedure is only formally pursued in order to get the regulations inspected and the approval obtained, with no real involvement. This reprehensible attitude affects some SEA for RDP, too.

The example of the Piedmont region, in Italy, is, on the contrary, and in a general sense, a positive case study, as the need to put community provisions into practice was rightly taken in hand and the procedure was carried out to benefit the environmental side, too.

The ex ante SEA completed in 2009 and the ongoing SEA were (and are being) carried out in an attempt to meet the intentions and the spirit of European Community Directive 42/2001/EC, and have tried different ways, whether optional or compulsory.

Our research study was intended to support the technical staff of the Piedmont Region in the difficult application of a Directive that is completely new and untried.

We conclude by highlighting the lesson learnt on the relation between rural development and future research perspectives put forward, particularly with regard to the Piedmont Region case study.

As regards process and institutional aspects, the results of the mid-term SEA call for a more integrated approach in the programming of rural development funding schemes, taking into account the wide array of regional policies and related instruments that can affect, or are affected by, rural development programs. In this sense, it is argued that adequate application of SEA can play a central role.

We emphasize that, beyond its operational aspects, the case study which we had the opportunity to work on brought to light some critical aspects that will certainly be on the agenda in the short term.

First of all, there is the strategic significance which the process of evaluation/territorial governance can take on at the local level. The majority of conflicts and environmental problems cannot be contained within municipal let alone regional boundaries; significant results could be achieved only by a multi-level approach, not only for juridical and institutional reasons, but particularly because environmental resources are not acknowledged within administrative boundaries. This necessitates moving to an upper level some typical problems of the SEA procedure: the necessity to face the trans-boundary aspects and the vertical merging of the territorial and environmental objectives; to widen the participation process; to select the most representative indicators; to draft alternative scenarios; etc.

As far as methodological aspects are concerned, the importance has emerged of the participation processes, the monitoring, awareness and formation of policies to involve all the actors, including individual farmers, in virtuous actions so that rural space can become a “good” to be preserved for them and for future generations.

Nevertheless, we have to express our doubts about the effectiveness of these tools: a bad capacity of using them in an effective way may compromise the expectations about their role for a real change in rural planning.

Moreover, the case study strongly confirms the importance of implementing a monitoring activity which can take into account previously neglected environmental aspects such as soil sealing and landscape preservation. In this sense, a satellite remote sensing-based approach may be envisaged. For example, landscape changes over the years could be analyzed by resorting to available archives of satellite images. The goal is to identify major changes in land use patches, highlighting land degradation and soil sealing phenomena on the one hand, and realization of environmental enhancement measures (tree planting, habitat creation, hedgerow installation) on the other.

For this reason, we would conclude recommending a pilot study that could be carried out on a selected area with significant agri-environmental features, in order to identify a possible methodology for systematic adoption in the monitoring of future RDPs.

In conclusion, the integration of RDP and SEA can be considered as an effective tool for pursuing sustainable rural development only if carefully assessing and monitoring the effects of rural policies on environment and landscape to achieve balanced regional growth.

We suggest that SEA can take on a decisive role in the governance of the Rural Development Programme process, as well as in the process of connection between investigation and programming: the investigation pursues the objective of recognizing and

clarifying the interactions between the different phenomena and of making the elements of greatest environmental criticality, so that the potential positive environmental externalities of the program can emerge, and the assessment can emphasize the right actions in order to valorize the environmental potentialities offered by the Structural Funds for rural development.

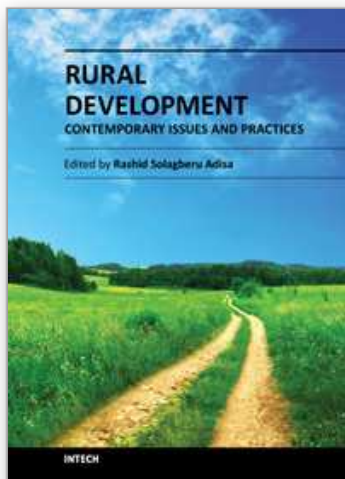
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Rural Development - Contemporary Issues and Practices

Edited by Dr. Rashid Solagberu Adisa

ISBN 978-953-51-0461-2

Hard cover, 408 pages

Publisher InTech

Published online 20, April, 2012

Published in print edition April, 2012

Development of rural areas has witnessed increasing attention globally, especially over the past three to four decades. The highpoint in the renewed global interest in the development of rural people and their environment was reached with the setting of the Millennium Development Goals (MDGs) in the year 2000. All of the set goals are basically rural development goals. With less than four years to the deadline for the achievement of the MDGs, it is almost certain that the goals are far from being achieved in, especially, most developing countries for whom the MDGs were essentially set. The struggle thus continues for rural development. As long as problems of poverty, disease, illiteracy, unemployment, poor infrastructure, environmental degradation and others persist (or increase) in rural communities, better and more result-oriented solutions to perennial and emerging problems of rural communities would be required. But rural development, in spite of the variations in thresholds of rurality among nations, is not exclusively a Third World or ‘developing countries’ process, owing to its multi-dimensionality. It is a global phenomenon that obviously requires global strategies. This book not only looks at rural development from its multi-dimensional perspectives, it is also a product of the experiences and expertise of distinguished scholars across the continents. Aiming to provide a comprehensive single volume that addresses salient issues and practices in rural development, the book covers themes ranging from sustainable agriculture, biodiversity conservation, strategic environmental assessment, renewable energy, rural financial resources, assessment of protected areas to statistics for rural development policy. Other subject matters covered by the book include social marginality, land use conflict, gender, cooperatives, animal health, rural marketing, information and communication technology, micro-business, and rural economic crisis. The book is thus an invaluable source of useful information on contemporary issues in rural development for researchers, policy makers, and students of rural development and other related fields.

How to reference

In order to correctly reference this scholarly work, feel free to copy and paste the following:

Agata Spaziante, Carlo Rega, Mirko Carbone and Chiara Murano (2012). Strategic Environmental Assessment (SEA) of Rural Development Programs in the European Union – Towards a More Efficient Monitoring of the Environmental Effects of Agricultural Policies, Rural Development - Contemporary Issues and Practices, Dr. Rashid Solagberu Adisa (Ed.), ISBN: 978-953-51-0461-2, InTech, Available from:

<http://www.intechopen.com/books/rural-development-contemporary-issues-and-practices/strategic-environmental-assessment-sea-of-rural-development-programs-in-european-union-towards-a-mor>

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