

TERESA

End executive summary (short)

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Based upon the general deficit of agricultural and regional policy not being able to picture the interactions and interdependencies between agriculture and the rest of the rural economy in all its complexity, the main objective of this project is to shed light on these patterns of integration of agricultural structures in different regional contexts.

Co operational multifunctional rural regions – the new paradigm?

The key theme of TERESA is “the mutual interactions that take place between agriculture, the environment and other aspects, social and economic, of the wider rural development processes”. These demands for an integrated and multifunctional role of agriculture are more and more mainstreamed in European agricultural and rural development policies. The dimensions of these claims are frequently categorised as follows (Hall and Rosillo-Calle, 1999): the *economic function*, the *social function* and the *environmental function*.

But not only society is concerned by an integrated agriculture, also the supply side – the farmers – have an interest in closer linkages to the rest of the rural world. Differentiating products, moving along the supply chain

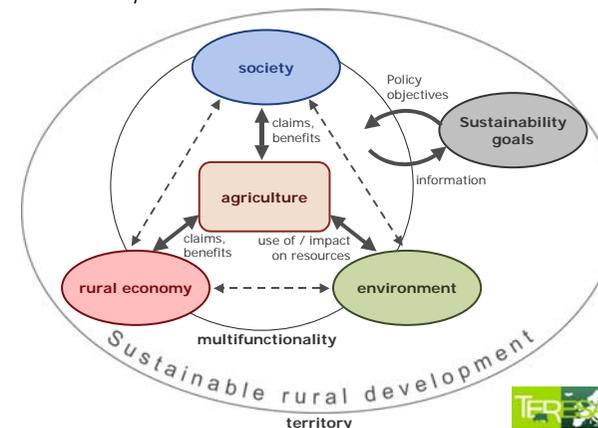
(“*deepening*”), diversifying activities (“*broadening*”) or economic restructuring and pluriactivity (“*regrounding*”) are all farmer’s strategies for securing income via tying up with other rural actors (cf. van der Ploeg, Roep, 2003).

The combination of the demand and the supply side illustrates the objective of TERESA linking multifunctionality with regional cooperation to achieve a truly goal-orientated sustainable rural development. The TERESA focuses on the region and the interdependencies of the economic sectors within the region rather than looking at policies as the starting point of the research. Based on the functions discussed, the TERESA triangular model of sustainable rural development, incorporating the interrelations between agriculture, rural economy, society and the environment into a sustainable rural development, was sketched (see figure below).

For a long time the prevailing policy paradigm was an *interventionist model* of secluded markets that kept farmers dependent on state aid. The subsequently emerged paradigm that is still favoured by many voices in the US and the WTO is the *competitive model* that is based on a industrialised, large scale agriculture that is competitive on world markets. Moyer and Josling (2002) identify the *multifunctional model* that is largely depending on the theory of public goods (cf. Ostrom 1994) as the third agricultural policy paradigm. For the TERESA project we widened this approach to explore a *cooperative and territorial model* that offers a greater diversity in integrated rural development taking into account the added value of

the agricultural sector for the environment, the local economy and social cohesion (cf. Allaert et al., 2006).

Agriculture in the context of multifunctionality and sustainable rural development



Source: ÖIR adapted from Cairol et al. (2006)

Integration patterns in rural areas: as diverse as the regions themselves

These three rural development paradigms all imply different states of integration of agriculture into rural areas in the form of ties, conflicts or no ties between economy, society and agriculture.

- The interventionist model is based on the assumption of individual producers that act independently from other actors in the same sectors or other sectors in a *coexistence situation*. This form of (non-)interaction is often

combined with a high level of (semi-)subsistence farming and small farm sizes. The resulting low valuation of territorial strengths runs the risk of a low performance of the regions.

- The competitive model favours strong producers organised per sector which leads to a *competition situation* with other sectors of the economy but also of the rural system as a whole due to the increasing profitability of certain intensified and large-scale farming systems. The most relevant conflicts between agriculture and other activities in rural areas are competition for labour (either a lack of farm workers or holders of less profitable farming sectors themselves who quit farming going after wage work) and the natural resources water and land.
- The cooperation and territory paradigm uses networks of activities, localities and/or ecosystems for different approaches for *cooperation situations*. Using synergies they may foster tourism, renewable energy production or local crafts and could go as far as using a region for film or other creative industries.

The potential of pursuing one of these strategies heavily depends of the very situation in the regions. Basically, for *regions in economic transition* the decision is largely open which path to follow. An intensification or specialisation (e.g. horticulture) depends on the quality of preconditions such as the availability of high-quality soils and enough water and in some cases (e.g. vegetables) on the distance to the major market areas, i.e. *urbanised and peri-urban areas* have advantages in this field. In peripheral *rural (i.e. remote) areas*, possibilities are more limited and activities will have to rely on natural assets such as beauty and diversity of the landscape. The development of rural tourism also depends, at least to some extent, on the vicinity to urban (market) areas and the accessibility of a region. Adding value to existing products requires special knowledge, a spirit of innovation and in many cases large-scale

investments. An integrated rural development concept including agriculture, besides economic constraints, depends on the local social capacity, the will to innovation and other factors.

Empirical evidence of tangible integration patterns

The empirical analysis in TERESA was based on two sources: Firstly, a set of potential integration data was established to calculate a *cluster analysis of European regions according to their specific integration* (NUTS level 2) that allows the identification of specific regional needs. Secondly, information in eleven case studies in selected European areas (NUTS level 3) was collected. The heart of this information collection was the assessment of 43 representative or specific innovative supply chains in these regions that were used for a *typology of interrelations between agricultural production and rural development* and, in a more experimental approach, as input data for an *agent-based model*.

As regards the *supply chains* featured, these can be divided into two basic types of products: *specific products* included traditional and typical products identified by their territory (non-exchangeable such as e.g. origin labelled products like PDO/PGI and exchangeable products that can be clearly identified by their territory) and consumer-driven products (e.g. organic production and/or specialised horticulture around agglomerations). *Standardised products* included exchangeable conventional products but with specific levels of consumption (local, national or global); however, some of these may be equipped with geographical attributes for marketing reasons (e.g. butter from clean and green Ireland).

The *cluster analysis* showed certain tendencies what type of supply chain is present in a specific type of region. However, it has to be stressed that due to the relatively high statistical/territorial level of NUTS 2 (data availability) there are definitely regions that cannot be allocated to a single cluster as the analysis cannot reflect the diversity within one region. However, the following types of Euro-

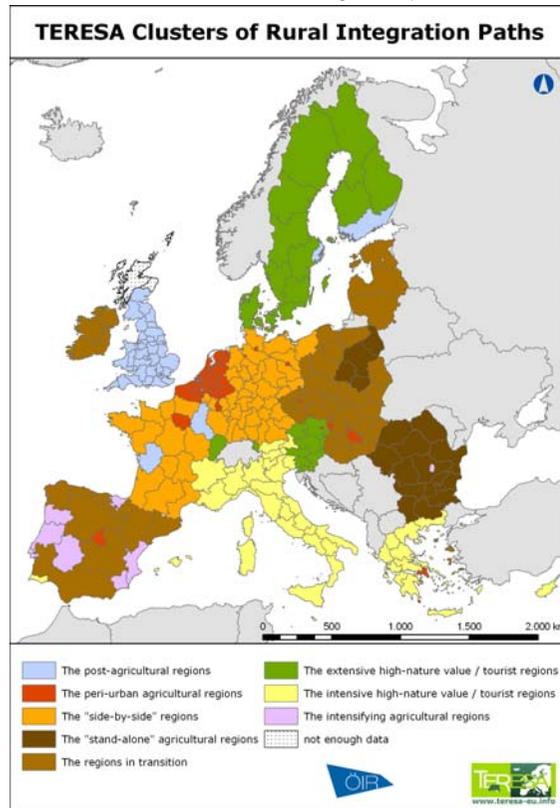
pean regions that are illustrated in the map below were distinguished:

There are two types of *urbanised regions* that can be clearly distinguished: The *„post-agricultural regions“* are highly populated with a mix of rural and urban areas with a marginal relevance of agricultural activities but a high level of secondary farmers' activities. These regions often feature consumer-driven specific products and develop short supply chains. Competition as well as cooperation patterns can be observed depending on the regional situation. The *„peri-urban agricultural regions“* are clearly urban, too, but have a very profitable agriculture. These regions can be found in very densely populated areas, mostly around large agglomerations. In these regions, competing land uses are a major source of conflicts. They often feature many standard products either for international markets or with geographical attributes for the (urban) consumer.

In three types of *regions agriculture has neither a strongly co-operational nor clearly competitive links to other sectors* but rather shows a *coexisting pattern*. These more rural “stand-alone agricultural regions” still have a very traditional and important agriculture, a low level economic development (but strong growth) and struggle with out-migration. This type can only be found in the accession states of the new millennium. A second type of lagging regions has a clear ongoing transition to secondary and tertiary activities (“regions in transition”). Mainly regions from the EU enlargements of 2003 and the Mediterranean regions can be found in this cluster. The type of region that is economically more potent (and in most cases more urbanised) but still has a low level of integration of farming is characterised as “side-by-side regions”. All these coexistence types mainly feature standard supply chains. The main impact of agriculture is its weight in the local employment but still it seems to be reduced to its primary production food supply contribution. This type of region is typical for central Western Europe.



The 8 TERESA clusters of rural integration paths



Note: intensive high-nature value/tourist regions do not necessarily have an intensive agriculture!
Source: ÖIR

Two types of regions have explicitly *favourable natural amenities* and, as a consequence, *high importance for tourism*. The “*extensive high-nature value/tourist regions*” are very large, with low densities and a high share of predominantly rural areas where tourism is important but not to a large extent (“sustainable tourism”) and agriculture is often based on extensive grazing and forestry, in many cases organic. In this cluster, mostly Alpine and Northern European regions can be found. Agriculture mobilizes specific resources for specific supply chains,

integrates within local networks, has a small direct contribution to employment but an important contribution to the quality of life (liveliness, culture, landscape, etc.). The other cluster is the “*intensive high-nature value/tourist regions*” where tourism is much more intensive (very high number of bed places, very strong increase of bed places, high amount of nights spent) and also agriculture is more diverse. Most of these regions are located around the Mediterranean Sea. Here the cooperation mentioned in the former type is counterbalanced by competition on land use, water, the workforce, etc..

The final cluster is the most heterogeneous. In the “*intensifying agricultural regions*” **agriculture is strong** as climate (mostly southern regions) and soils are favourable and **urban/economic areas as well as agricultural areas have been expanded extremely recently**. This causes conflicts in land use and water use. Though agriculture has a more important weight in the employment and mainly produces standard products, it is less integrated into the regional development of rural areas compared to the extensive tourist areas.

Summing up, albeit the landscape of European regions is extremely diverse, there similar pathways of integration of agriculture can be observed all over Europe according to regional specifics. Not least, agricultural supply chains shape and are shaped by the regions in which they operate. With these findings the TERESA cluster analysis may help to better steer Rural Development support policies in a way that overall EU policy goals such as ...

- Sustainable territorial development
 - Territorial Cohesion
 - Integrated regional development to foster competitiveness
- ...may be more effectively achieved.

In this context the aim of the *TERESA agent-based model* (ABM) was used to explore how interactions and interdependencies between different agricultural network structures and the rest of the rural economy affect rural sus-

tainable development. It engaged especially in the exploration of resilience and robustness of rural systems by modelling rural development based on farming styles, supply chains and farmers’ behaviour. Van der Ploeg and Roep (2003) already indicated the importance of these factors on the process of integrated and multifunctional rural development.

The TERESA ABM experiments indicated that the resilience and robustness of agricultural systems cannot be reduced to the level of diversity of a system, to the behavioural responses of actors to a stress or to the functioning of the system at the time of the stress alone. Instead, the results suggest that the *interactions between decision rules, their effect on the function* (or performance) of the system and the *subsequent effects of the performance on future decisions* play an important role with regard to the resilience and robustness of agricultural supply chains. Thus, it is the interaction between function and decision rules that provides a system’s ability to cope with stresses.

What multidimensional diversity can mean for Europe’s rural future

The TERESA supply chain and cluster analyses and the TERESA agent-based model provide us with two main conclusions about diversification:

- *Rural diversity takes place on two basic levels*: Diversity of the rural economy at regional level can be a very successful strategy for providing vital rural regions that manage to keep up pace with today’s knowledge society. Diversification at farm enterprise level can help to provide new sources of income can augment otherwise stagnating agrarian incomes which subsequently facilitates the ongoing provision of public goods through agriculture.
- *Diversity should not be considered as an end in itself*. There are agricultural supply chains and regions alike that can perform well and be resistant to external influences without major diversification activities. Their success on one hand depends on the way decisions are taken and by which dynamics they develop over time,



and on the other hand on appropriate instruments to avoid negative external effects in case of unsustainable resource consumption.

Consequently, also the improvement of the environment and the countryside can function as a very strong foundation that makes increasing sustainable use of endogenous resources and makes certain diversified activities possible. Nevertheless, a positive performance in terms of competitiveness and quality of life can generate a series of conflicts that have to be taken into account (above all in the competitive patterns).

The analysis of the data gathered in the case studies in TERESA provides a far more precise picture of the situations in rural areas, than the usual common regional scale of NUTS 2, as it is used at the “standard” EU programming level. Moreover, the amount and choice of indicators analysed in TERESA is more apt to depict strengths and integrational patterns of agriculture. Thus, the TERESA cooperation patterns allow for a pluri-dimensional and focused addressing of sustainable rural development that manifests itself in three basic strategic directions.

First, in the sense of a meta policy recommendation, there is a clear need for *differentiating rural territories*, to take into account the rural diversity and the type of regional development in order to formulate a successful policy. TERESA pushed this approach much further by differentiating regions according to their favoured integration pathways as well as their strengths in agricultural production. Every region has its specific attributes and therefore also its specific needs for the “right” policy mix.

Second, a further shift from the predominant individual level of intervention into agriculture (subsidies) towards a more *rural systemic approach* such as the investments into adding value to regional supply chains, the facilitating of other cooperative regional systems or the building up of local capacity will be required. In this respect, the strategic planning of structural funds would have to overcome the boundaries of the different funding sources to integrate all

economic, social and environmental goals into rural development policy.

Third, the aspect of *multifunctionality and the provision of public goods* will have to be included more accurately in development strategies. The provision of public goods, where it is clearly related to agriculture, should be compensated as they constitute an important foundation for the improvement of the countryside and the rural system in order to defend environmental assets against the consequences of structural change (Potter and Burney 2002).

Indeed, the proactive *combination of territorial and systemic approaches* in rural development (e.g. regional supply chain networks) can be a powerful strategy to safeguard local agricultural production (and at the same time local public goods) and creating added value for the environment, the local economy and social cohesion in the sense of public goods (cf. Allaert et al., 2006). In conclusion, strategies to increase the competitiveness of rural areas and the sustainable provision of public goods alike include (cf. van Huylbroek et al. 2007):

- In a *competition integration pattern*, the strengthening of local networks and promoting higher value production introduces the social sustainability dimension into rural development. In this context, a stronger consumer orientation in agricultural production such as prepared primary products *ready-to-eat*, higher quality products or an investment in organic production may be successful. Additionally, the encouragement of sustainable use of natural resources (basically land and water) fosters ecological sustainability (which is important as most of these regions are urban and/or tourist regions).
- In a *cooperation integration pattern that is based on activities* (agri-business sector), the strengthening of competitiveness on the basis of territorial resources, i.e. product rather than scale oriented, backs up social and ecological sustainability efforts alike. Here,

the focus on traditional and typical products (non exchangeable origin labelled products) or the new development of products which are in principle exchangeable on commodity markets but add value to the customers (and the agricultural income) by a territorial identity is useful.

- In a *cooperation integration pattern that builds on a territorial network* already, the further strengthening of the regional identity and creating of vertical markets will increase economic and social sustainability. Direct marketing strategies and the integration of agricultural products into tourism development are important features in this respect.
- In *cooperation integration pattern that builds upon an ecological approach*, the creation of local food networks and non-commodity markets will put more focus on economic and social sustainability.

A new policy focus on integration of agriculture

Future policy objectives have to address the following key question: How do you provide support within the European framework of policies to improve the contribution of agriculture to rural development? The following recommendations are directed to European, national and regional policy-makers in the field of agricultural and rural development policies. Apart from the TERESA results previously presented, the policy options were based on the assessment of the present policy impacts on integration of agriculture in rural development and the key results of a creativity lab involving 17 policy makers and researchers in order to imagine options that can contribute to a better integration of agriculture in rural development. In reference both with the scientific results of TERESA and the debates during the creativity lab, the headings structuring the TERESA policy options are as follows:

First of all, there is a need to design a common and enlarged definition of rural areas and of rural development taking into account current dynamics such as new connections between rural and urban areas, networks between activities and stakeholders, new environmental concerns (biodiversity



losses and climate change), governance and self-empowerment of rural areas, trends in supply chain organisation, new relevant levels of action, specific needs and situation of new European accession countries.

Second, the creativity lab pointed out the difficulty for rural development policy to handle the regional diversity while having a consistent European policy framework with common orientations and priorities for rural areas. TERESA detected that the European regions may be grouped in different types and formulated relevant policy objectives for these types (rural areas in transition countries, rural areas in developed countries, periurban areas in developed countries, tourism areas in developed countries...).

Third, TERESA helps reconsidering the standard scales of intervention for policy tools. Current policy tools address mainly the farm and the local levels. These levels should be reconsidered in a more rural systemic approach taking into account regional supply chains, cooperative regional systems and local capacity. TERESA proposes a model that can help to identify new relevant scales. This invites to revisit the concept of local action groups and local development at an upper level (i.e. to associate wholesaler, to link city and their countryside).

Finally, to handle in a practical way these challenges TERESA re-examines another tool: the notion of territorial (place-based) projects and contracts. It allows us to discuss both the issues of public goods and justification to support agriculture and the practical implementation of "place based" approach and certification of products including geographical (as PDO products Protected Designation of Origin) but also environmental and social (namely sustainable) concerns.

If different regions can be addressed according to their real needs, the outcome will be more sustainable than today, which is also backed by the Barca report "An Agenda for a Reformed Cohesion Policy" (Barca 2009) published earlier this year, in which a place-based approach to meeting EU challenges and expectation has been

called for, addressing both Common Agricultural and Regional Policies. Regional and rural policy has already begun a paradigm shift from top-down, subsidy-based approaches into a broader integrated approach designed to improve local competitiveness that takes into account the valorisation of local assets and knowledge in a multi-sectoral approach and is built on the investment in local structures rather than individual subsidies (OECD, 2006). With the TERESA approach that assesses the integration capacity and potential of all rural sectors and players, a new empirical basis has been created that can serve as a starting point for a regionally and systemically differentiated rural policy in Europe.

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TERESA facts

TERESA (Types of Interaction between Environment, Rural Economy, Society and Agriculture in European Regions) is a rural development research project co-funded under the 6th Framework Programme for Research and Technological Development and conducted by 12 research institutions from all over Europe. The work within TERESA was organised along five work packages (WP):

- WP 1 “European background” summed up the relevant policy background, especially focusing on the different policies that are influencing rural development and diversification in rural areas.
- This empirical analysis was done in WP2 “Case Studies” by eleven case studies in selected areas. The case studies investigated the interrelationships between agricultural and non agricultural activities by analysing supply chains in the agricultural sector as well as the relationship of (agricultural) production, environment, land use and quality of life in different European rural regions.
- WP3 “Modelling” used the input of WP1 and WP2 to set up an agent based model to show how different patterns of behaviour can influence the development of supply chains in rural areas.
- WP4 “Synopsis” is the main output of TERESA in terms of scientific results. It sums up all the reviews and methodological inputs from the previous work packages serving as input for WP 5 “Policy options”, which is mainly addressed to the makers of rural policy and administration.
- Finally, based on the results of WP1 to WP4 in WP5 “Policy Options” different policy options for the future development of rural policies were elaborated. The impact of the different policy options on rural development were analysed via a SWOT analysis.

Project partners

- Austrian Institute for Regional Studies and Spatial Planning (OIR)
- Norwegian Institute for Urban and Regional Research (NIBR)
- SPRU – Science and Technology Policy Research, University of Sussex (SPRU)
- Le Service Montagne des Chambres d’Agriculture de la Savoie, Haute-Savoie et de l’Isère/GIS Alpes du Nord (SUACI)
- Department of Agricultural Economics and Social Sciences, Humboldt University of Berlin (UBER)
- Institute of Geography and Spatial Organization, Polish Academy of Sciences (IGSO)
- Dpt. Economia Aplicada/Fundació Empresa i Ciència, Universitat Autònoma de Barcelona (UAB)
- Centre for Rural Assistance Romania (CAR)
- Federal Institute for Less-Favoured and Mountainous Areas Austria (BABF)
- Research Institute for Regional Development, European Academy Bozen/Bolzano (EURAC)
- Department of Agricultural Economics and Rural Development, Corvinus University of Budapest (CUB)
- Department of Food Business and Development, University College Cork (UCC)

TERESA is a Specific Targeted Research Project funded by the Community’s 6th Framework Programme for Research and Technological Development.

- Project duration: January 2007 to October 2009
- Total cost: EUR 1,006,000.00
- EU contribution: EUR 756,500.00
- Contract no.: SSPE-CT-2006-044400

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