



Sixth Framework
Research Programme

**Global Change and
Ecosystems**



Multagri Project

Capitalisation of research results on the multifunctionality of agriculture and rural areas

***Definitions, references and interpretations of the
concept of multifunctionality and its
contributions to a sustainable development :***

Synthesis of country reports

Work package : **WP1**

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The Multagri Project

Multagri : an overview on the multifunctionality of agriculture and rural areas

Multagri is a Specific Support Action undertaken within the 6th Framework Research Programme of the European Commission. With a partnership of **26 research organisations** from **15 countries** this project will provide a comprehensive overview of existing research, particularly in Europe, on different aspects of the multifunctionality of agriculture and rural areas. The approach adopted in this initiative is based on the premise that the multifunctional character of agriculture must be acknowledged and promoted so that agriculture can fulfill its potential as a central pillar of sustainable development.

From a state-of-the-art to recommendations for future research

Although the notion of multifunctionality only recently appeared on international political agendas, numerous social, cultural, technical and research practices already refer to it, either explicitly or implicitly. It is important to structure, assess and interpret these works to enable the identification of relevant questions for future research. This will be the role of Multagri, in six stages :

1. Evaluating the **state-of-the-art of current research**.
2. Further analysis and **understanding of ongoing research work**.
3. Identifying the **main institutions and networks** involved in this type of research, both inside and outside Europe, and paying special attention to new EU member countries.
4. Identifying the different **disciplines and scientific approaches** that are generating knowledge and conceptual backgrounds in this area.
5. Providing a **conceptual and analytical framework** that allows for the identification of approaches and topics for further research.
6. Formulating **recommendations for a future research agenda** concerning the multifunctionality of agriculture and rural areas.

Six research issues

Six thematic axes of research have been identified in order to structure the analysis and guide the development of recommendations for promising lines of future research:

1. Definitions and interpretations of **the concept of multifunctionality**, and its contribution to sustainable development.
2. **Consumer and societal demands**.
3. **Models, techniques, tools and indicators** that are of value in examining the multifunctionality of agriculture.
4. **Multifunctionality of activities**, plurality of identities, and new institutional arrangements.
5. Establishment and **management of public policies** aimed at promoting multifunctionality : connecting agriculture with new markets and services and rural SMEs.
6. **Evaluation of the effects of policies** on the multifunctionality of agriculture: observation tools and support for policy formulation and evaluation.

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Executive Summary

1. The notion of multifunctionality increasingly gained attention during the nineties in discussions about agricultural policy changes and the future of agriculture, both at national and international levels, particularly within the framework of OECD works and in the WTO multilateral negotiations on agricultural trade. This emergence gave rise to many political and theoretical discussions, at both levels. As a result, several definitions and conceptions of multifunctionality have been elaborated and presented.

2. The main objective of Work Package 1 is to present, compare, analyse and classify those different definitions and concepts, in order to capitalise the results of the corresponding discussions.

3. The general objectives of this synthesis report are:

- to give a picture of the differences in explicit attention for the multifunctionality concept within policy and above all in research among European countries, based on a five countries case study (France, the Netherlands, Poland, Spain, and Switzerland),
- to illustrate the diversity in the conceptualization of multifunctionality,
- to show the relevance of closely interrelated concepts that also express societal concerns about other functions of agriculture than merely the provision of food and fibre,
- to illustrate the co-existence of different national Concept Oriented Research Clusters (CORC), characterized by a relative homogeneity in the research questions addressed, in the concepts used or discussed by scientists to lead their work, and by the scientific disciplines, the stream of thought or possibly the epistemic community researchers belong to.

4. As a first result, it can be noted that societal demands and concerns about other functions of agriculture than food and fibre production continue to be expressed at the national level within Europe, predominantly expressed in research works through other concepts than multifunctionality, with the exception of France.

5. The scientific disciplines mobilized are mainly of social sciences, with works in sociology, geography, law, political sciences and above all economics.

6. Eight CORCs can be identified from our national case studies:

- A joint production of commodities and public goods
- Multiple impacts and contributions from agriculture to rural areas
- A complementary and conflicting connection between commodities and identity goods
- Farmers strategies and practices: multifunctionality, technical change, livelihood systems
- Multiple use of rural space and regional planning
- Adjustment between activity systems and societal demands as a way toward sustainable agriculture and rural development (SARD) regulation

- A social demand towards agriculture
- Governance, policy and multifunctionality

7. The conceptions of multifunctionality and the actual concept or expression used in works vary within countries, between countries, among scientific communities, and depend as well on the structure and respective importance of scientific communities and disciplines at national levels. These differences are related to:

- What is designed as multifunctional : agriculture, holdings, rural areas or forests, etc.
- The expressions used : multifunctionality (or multiple functions), non-commodities output (coming from the OECD analytical framework), identities goods, multiples roles, etc. Moreover, national debates can be focused on more or less closely related concepts like “integrated agriculture”, “sustainable agriculture”, “reasoned agriculture”.
- The main common functions identified by researchers or experts (positive works), which depend on studied places and scientific disciplines of the researchers involved.
- The functions to be promoted (normative works): the recommendations on what should be the functions of agriculture or rural areas and the way to enhance them can widely differ, depending on the conception, concept and theoretical framework used.

8. The connection between the concept of multifunctionality and the one of sustainability is almost never explicitly done in reviewed scientific works. Part of these works implicitly refers to the consistency or the contribution of agriculture with an objective of promoting a sustainable development. For instance, studies of agriculture’s contribution to global functions, such as income, employment and natural resources, can be related to the three dimensions of sustainability (ecologic, economic and social).

9. Nevertheless, differences in perceptions on the interrelations between those two concepts can be noted. For example, in Switzerland multifunctionality is considered by policy makers and officials of governmental agencies as a prerequisite for sustainable agriculture, whereas in the Netherlands the opinion dominates that multifunctionality is one specific example of the different farm development trajectories towards sustainable agriculture.

10. Some general shortages of scientific works appear from our case studies:

- in all countries, there is a notable lack of scientific attention for the specific interrelations between the concepts of multifunctionality and sustainability as two central guiding principles for agricultural and rural development and policies,
- more empirical research is obviously needed to characterize multifunctionality, including divergent perceptions and valuations by different stakeholder groups, appraising for instance the contributions of agriculture to rural development, the economies of scope, the social costs and benefits of agriculture, etc.

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Introduction

General context

1. Since the late nineties, multifunctionality has become an issue of interest for scientists in social sciences across the world. One reason is the emergence of the concept in the international debate about agricultural policy changes, particularly within the OECD works and in the WTO multilateral negotiation on agricultural trade.

2. In this negotiation, multifunctionality has been used as an argument by the so-called “friends of multifunctionality” group¹, to defend public support to the agricultural sector. The basic idea behind this was that domestic agriculture, because of its multifunctional character, is necessary to achieve some non-commercial objectives such as environmental protection, rural development, landscape maintenance, as well as food security and food safety, justifying thus the maintaining of protectionist policies such as tariffs, price support or above all coupled-to-production subsidies. Since the theoretical background for the study of the trade negotiations and the evaluation of non-trade concerns lie in the body of welfare economics, the debate on multifunctionality has led to a first set of economic papers coming from the different administrations and institutions involved, as well as from researchers, mainly on the economic justifications and recommendations for public intervention for multifunctionality purposes.

3. In parallel, the concept has emerged at the EU level within the internal debate on CAP reform. The objective of multifunctionality features officially for the first time as an objective of the CAP in the compromise text adopted at the Berlin European Council of the 24th and 25th March 1999, adopting Agenda 2000².

4. It appeared as well, to an extent that differs among countries, within national debates about the roles that should be assumed by the domestic farm sector (on one extreme, just to be competitive and modernized to produce at less cost Vs integrated agricultural production systems assuming a broad set of functions), the consistency of agricultural production methods with the increasing social concerns particularly in the matter of environmental protection, food safety and animal welfare, and the appropriate public measures to promote the so-called “new functions” (taxes Vs subsidies, public support Vs private arrangements, etc). Those debates gave rise to new works, in economics as well as other disciplines within social sciences. They are related to specific national issues the sector faces, like questions about what should be the contributions/roles of agriculture to domestic objectives such as rural development, what are the actual functions of agriculture in given areas, what are their value (external costs and benefits of agriculture), are the different objectives of the agricultural policy consistent and are the policy measures efficient to achieve this new objective, etc.

¹ Group including the EU, Japan, Mauritius, Norway, Republic of Korea, and Switzerland.

² It is stated that “the content of the reform will secure a multifunctional, sustainable and competitive agriculture throughout Europe, including in regions facing particular difficulties. It will also be able to maintain the landscape and the countryside, make a key contribution to the vitality of rural communities and respond to consumer concerns and demands regarding food quality and safety, environmental protection and maintaining animal welfare standards.” (SN 100/99)

Objectives of work packages 1 “Definitions, references and interpretations of the concept of multifunctionality and its contributions to sustainable development”

5. The main objective of WP1 is to present, compare, analyse and classify the different definitions and concepts used in political and theoretical discussions on multifunctionality, in order to capitalise the results of the corresponding discussions. The various political and theoretical elaborations at national and international level is presented and discussed, in connection with their different economic and social backgrounds, as well as their impact assessments (economic, environmental and social) in the field of multifunctional policies and tools. As well, the proposed ways to quantify economic, environmental and social impacts of the concerned policies is collected and examined. The question of national interests or capabilities to develop multifunctional policies is not limited to EU member states, but also take into account the experience of developing countries (Africa, South-America) and non-European countries who actually develop multifunctional policies without recognising the concept as such (USA).

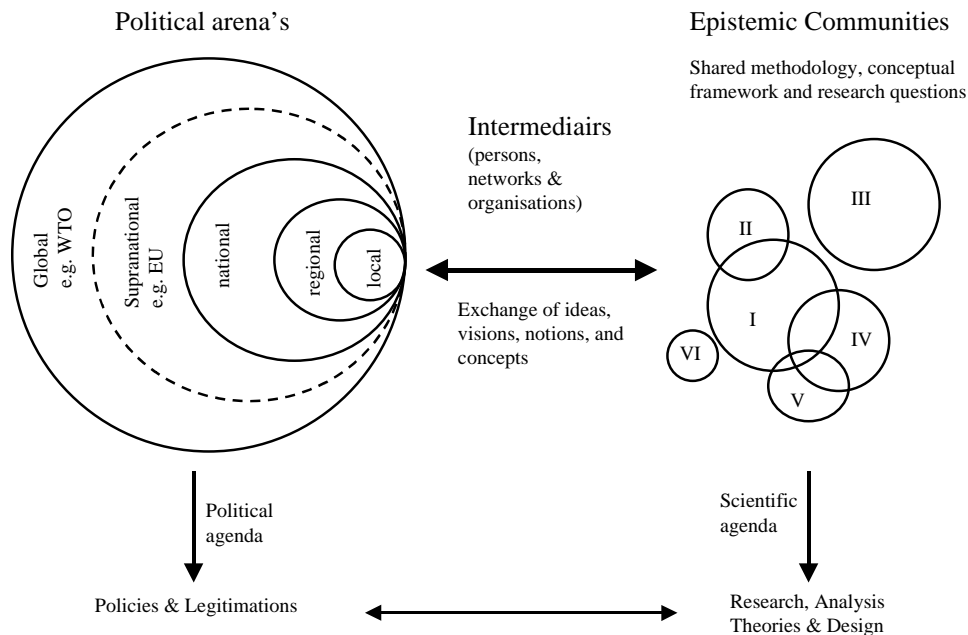
Elements of method of the national reports

6. The five case studies in France, the Netherlands, Spain, Switzerland and Poland aimed to ascertain the state-of-the-art of conceptions and definitions of multifunctionality used in national scientific works, and to relate the conceptions of multifunctionality with the specific domestic context regarding the particular position and history of the national agricultural sector, national policies, etc. But it must be noted that this first of case studies does neither allow us to make a complete inventory nor a full comparative analysis of the existing literature.

In each case study, the authors have sought to identify and to analyze the interrelations between political arenas and scientific communities. More precisely, they have attempted to describe how the political and scientific agenda co-evolve, exchanging ideas, notions and concepts and how they respond to changes in their own ‘world’ and to each other in time. Figure 1 portrays those “waves” and “boomerang effects” between the political arena and “epistemic communities” or Concept Oriented Research Clusters (see below), that have been applied to the introduction of the concept of multifunctionality into the discourse of politics and sciences.

On one side, politicians (and with them policy makers) have to legitimate their policies (choices made, measures taken and instruments used). In this they (can) draw upon the outcomes of scientific research (concepts, theories, etc.) or specifically ask a scientific legitimization of current or anticipated policies (evaluations, recommendations or design of policies and policy instruments). On the other side, scientists live in epistemic communities sharing methodological foundations, a general conceptual framework and a generic set of research questions. These scientific tools can be further specified according to specific domains or fields of research (e.g. agriculture or even more specific). They produce theories, deliver designs (e.g. of policies), give recommendations or evaluate policies and instruments and debate about their findings. So basically, concepts can travel from one world to the other. There are several intermediates between a political arena and epistemic communities. Such as professors that advocate their vision (perspective) on a specific field or topic and enter the policy debate, but these can also be organizations like the FAO or OECD. Especially in dynamic circumstances, with some fundamental changes and a delegitimation of existing policies as it happens with agricultural ones, politicians are looking for new ‘concepts’ to base their policies on. They might draw upon old or new scientific concepts. Science is paid to study changes and to come up with tools to understand these changes and tools to intervene.

Figure 1. Evolution of Political and Scientific Agendas



Each case study also seeks to look at the national specific Concept Oriented Research Clusters (CORCs). Each CORC is characterized by a relative homogeneity in the research questions addressed, in the concepts used or discussed by scientists to lead their work (e.g. joint production, multiple impacts, rural development, etc.), and by the scientific disciplines, the stream of thought or possibly the epistemic community researchers belong to. The results of this analysis are synthesized in a table included at the end of the individual summaries of national reports. A global table, drawn both from national case studies and from the review of international literature, is also included in the annex.

Four levels of literature on multifunctionality reviewed in case studies can be distinguished:

- (i) works that refer explicitly to multifunctionality and gather in CORCs,
- (ii) works relevant/promising for multifunctionality that do not refer to the concept (for example some communications accepted in conferences on multifunctionality),
- (iii) works which do not refer to multifunctionality but that bring inputs to the debates on multifunctionality (related issues such as farming impacts on rural employment, landscapes, natural resources, etc.), and
- (iv) works that refer to multifunctionality as a political objective but don't consider it as a research topic.

The extent to which each national report focuses on one level or another largely depends on the state of the national contributions to the literature on multifunctionality. In France for example, the wide set of literature referring to the multifunctionality concept allows to make a

state-of-the-art almost exclusively of the first level of literature. In other countries where the concept has rarely been used in scientific works, the national review of literature concentrates more on other levels.

The reviewed literature is represented in the bibliographies included in each national report. The reader can refer to the bibliography annexed to find references quoted in this report, and to the national reports to find the complete bibliographies.

General objectives of the synthesis report

7. The general objectives of our synthesis-report are :
 - to give a picture of the differences in explicit attention for the multifunctionality concept within policy and research among EU member states,
 - to illustrate the diversity in the conceptualization of multifunctionality,
 - to show the relevance of closely interrelated concepts that also express societal concerns about other functions of agriculture than merely the provision of food and fibre,
 - to illustrate the co-existence of different national Concept Oriented Research Clusters.

Summary of the national report from France

1. Introduction

Since the late 1990s, multifunctionality has been an issue of great interest for the social sciences in France. This has led to a wide-ranging and heterogeneous set of works referring to this concept. This phenomenon has of course emerged both as part of the growing political debate on multifunctionality at an international level and within a specific national context.

2. National context

First of all, French agriculture is highly diversified and includes almost every type of commodity supplied within Europe. Both the plant and livestock sectors are equally represented. Regional variations range from highly intensified and specialized agriculture on large-scale holdings such as cereal crops in the *Bassin Parisien*, through intensive pig, poultry and cattle farming in the West (Brittany, Pays de la Loire), to more extensive agriculture with sheep, goat and cattle farming in mountain areas and less-favoured areas (including tropical ones). As in many other parts of Europe, the trend in recent decades has been towards the concentration of holdings, the intensification of farming processes, and the abandonment of land in less-developed areas. Some of the issues raised by the debate on multifunctionality — agriculture's contribution to rural development and to balanced land-use across the national territory, and its negative and positive impacts on the environment, the landscape and natural resources — had therefore already emerged in the national debate by the late 1970s and in the course of the 1980s.

Furthermore, even if agriculture has declined in terms of employment and its contribution to GDP, the sector remains important for France and it still wields considerable political influence, as evidenced by successive governments' conservative positions on CAP reform and in WTO trade negotiations. France has always supported a strong CAP, calling for price support, milk quotas and export subsidies to be maintained, and more recently for subsidies to be coupled to production. The French government's interest in multifunctionality may be interpreted, then, as a new way to justify current agricultural policy.

But the enactment of the *loi d'orientation agricole* (Agricultural Orientation Law) in July 1999 showed that one priority for the government of the day was to move towards greater incentives to improve farming practices and to improve the allocation of public-sector support. The Act officially recognizes the multifunctional character of agriculture: 'Agricultural policy takes into account the economic, environmental and social functions of farming and contributes to the management of the territory, with a view to sustainable development'. It also implements a new policy instrument, the *contrat territorial d'exploitation* (CTE : Local Exploitation Contract). The objectives of this new policy were, among others, to increase the supply of high quality products and to protect natural resources, biodiversity and landscapes. Even if the current administration has decided to replace the CTE by the *contrat d'agriculture durable* (CAD, sustainable agriculture contract), with a view to simplifying procedures and reducing public spending, the new instrument remains much the same in spirit.

During the 1990s, the French government's interest in multifunctionality prompted the Ministry of Agriculture to commission some contributions both to NGOs and to economists from INRA on the issue of the justifications of public intervention for the promoting of multifunctionality, in the view of the WTO agricultural trade negotiations. Purely academic output on multifunctionality began in the late 1990s.

3. The research streams on multifunctionality in France

We account for the different definitions and conceptual contributions of the existing literature in France on multifunctionality. To structure this amount of publications without bringing any judgment on the different views on multifunctionality, we classify them into research streams, that designate different epistemic communities working with specific conceptual approaches on multifunctionality. We focus on the scientific genesis of these definitions, the type of agriculture that they describe and the strength and weaknesses of each definition.

Six research streams can be identified from the selected academic works :

Research stream 1 : joint production by farming of commodities and goods with externalities and/or public goods aspects

This first stream uses a conception of multifunctionality which is consistent with the 'positive' definition laid down and used by the OECD in its works (OECD, 2000; Vermersch 2001). The main issue covered in works using this definition is the efficiency with which public policies or other institutional arrangements promote multifunctionality. The policies surveyed are the ones implemented at all levels (CAP measures at European, national and regional level, trade policies, international trade regulations; Mahé and OrtaloMagé, 2001; Guyomard, 2000; Guyomard et Levert, 2001; Bonnieux et Rainelli, 2000; Requier-Desjardins, 2002; Le Cotty et al., 2003). Most of these works belong to the mainstream of neoclassical economics (welfare economics, neo-institutional economics, environmental economics, economics of production and trade, etc.). Few contain any lists of functions, reflecting a shortage, within this category of works, of empirical studies on determining what the functions of agriculture are. Some authors mention a legitimate multifunctionality, that is, multifunctionality which, in the light of welfare economics, justifies public-sector intervention.

Research stream 2 : Multiple impact and contribution of agriculture/rural areas to society, local community and environment

It deals with the contributions of holdings, of a rural territory or of woodlands, which may be positive or negative, and may affect a community, a territory or a society as a whole (Bonnal *et al.*, 2003 ; Callois *et al.*, 2002; Revel *et al.*, 2002 ; Aznar and Perrier-Cornet, 2003 ; Pingault, 2001; Laurent, 2000). Moreover, these contributions / impacts are not considered through their non-market aspects. A first category of agronomists and economists within this stream seeks to expertise the impact (on employment, landscape, income, etc.) of agriculture or of specific holdings in a given area. A second one, coming from disciplines such as geography and management sciences, is interested in actions (such as public policies or private coordination) that may promote or hamper multifunctionality. This conception produces very wide-ranging lists of functions, which differ with the location and size of the areas considered, collating all identifiable contributions or positive impacts of farming or rural areas.

Research stream 3 : Agricultural Multifunctionality as a complementary and conflicting connection between commodity and identity good productions

Economists usually consider that non trade concerns in the field of agricultural multifunctionality should be analysed as resulting of market failures, which would find its solution either by way of creating new appropriate markets or by way of public good production. Researchers involved in this stream do not share this opinion based on the presupposition of continuity between private and public goods. They consider that market exchange development unavoidably involves the destruction of identity and reciprocity structures. The non market exchange dimension of agricultural production is precisely

assigned to restore identities and reciprocity relationships (concerning community and resource management, culture territory, intergenerational link...). In other words, two separate economic rationalities (market exchange economy and identity or reciprocity economy) take place in the field of agricultural multifunctionality, and conflict, which means each one sets the limit to the other (Aznar and Guérin, 2002; Barthélemy and Nieddu, 2002; Sabourin and Djama, 2002; Barthélemy, 2003; Sourisseau *et al.*, 2004; Barthélemy and Nieddu, 2004; Andriot, 2003).

Empirical works of this analytical stream, in several parts of the world (EU –national implementations of Rural Development Regulation-, North and South America, Africa) show the way these two complementary and conflicting dimensions of agricultural multifunctionality and sustainable development are implemented: on the one hand market exchange organisations and market price systems, on the other hand identity and reciprocity organisations (mainly renewal or new establishment of communities) and framing of non merchant price systems. Each of these two economic ways tends to overflow the other, resulting in movements and changes. Researchers draw the concrete lesson that there always will remain two different (market and non market) organisation and price systems, and that political task deals with managing and controlling conflicts between both of them and not to hopelessly keep trying to reduce one dimension to the other.

Research stream 4 : Farmers strategies and practices

In this stream, multifunctionality is perceived by agronomists and economists as a set of “good” agricultural practices (Morardet, 2002; Daniel, 2002; Deraeve, 2002; Ulmann, 2002; Bazin and Kroll, 2002, Aumand and Jaquet, 2003);. Those “good” practices do not refer here to social demands, but more to ecologic norms (sometimes combined with economic ones), that should be integrated in farmer’s individual choices. The main issue researchers deal with is to what extent the recognition of multifonctionality (in public policies or in local institutions) has led to an improvement in farmers’ practices, or again to changes in farming strategies toward multifunctionality. They usually do not attempt to identify any list of functions of agriculture, but consider more the new functions, like environmental protection, the maintaining of landscapes or the contribution to rural employment, as given, trying to see if producers’ technical choices are moving in this direction or not.

Research stream 5 : Social demands towards agriculture

For other researchers (mainly economists and agronomists), the multiple roles or functions of farming relate above all to expectations or requirements of the society or community of which it is part (Léger, 2001; d’Auvergne *et al.*, 2000; Raymond, 2003; Alphantery and Pinton, 2002 ; Buttoud, 2000, 2001; Léger, 2004). The two main types of questions they raise relate to the identification of these social demands and to the ways agriculture might be able to meet them. The lists of functions considered or identified by these authors contain the different expectations of agriculture and in particular the expectations arising from consultation procedures when CTEs are put in place.

Research stream 6 : Roles of agriculture to be officially addressed by policies

This stream refers to the functions of agriculture explicitly recognized in the legal texts underpinning agricultural policies. Some researchers here study the consistency of this new official objective (promoting multifunctionality) with policy measures implemented, in particular the CTEs, using expertise most of the time (Berriet-Sollicet *et al.*, 2003 ; Pivot *et al.*, 2003 ; Josien *et al.*, 2001 ; Chatellier *et al.*, 2003 ; Aumand et Jaquet, 2003 ; Perraud, 2003,

Perraud, 2004). Others try to see if multifunctionality constitutes a new paradigm or can be a new guide for agricultural policies (socio-economists such as Laurent, 1999, Losch *et al*, 2004; Laurent and Maxime, 2003; and above all researchers in political sciences such as Delorme, 2003; and rural laws, Bodiguel, 2004). The functions mentioned in this research works are therefore those embodied in the CAP and in the French agricultural policies.

4. Multifunctionality and sustainability

The connection between multifunctionality and sustainability is almost never explicitly mentioned. But some of these works implicitly refer to whether the contribution of agriculture is consistent with the objective of promoting sustainable development. For instance, studies of agriculture's contribution to functions considered all together, such as income, employment and natural resources, can be related to the three dimensions of sustainability (ecologic, economic and social).

5. Conclusion

The state-of-the-art of French studies of multifunctionality highlights a wide-ranging and heterogeneous set of works. This academic output is produced in the context of political discussion on agricultural policy reform at both international and specifically national level. This includes the historical importance of rural economic and sociological disciplines in France and of works on related issues, the official recognition of multifunctionality both in the French agricultural law in 1999 (and the implementation of the CTE) and in the CAP, and the interest of the French government in the concept for policy purposes (reflecting the great traditional political influence of the farm sector) as well as for a rethinking of the transfers to the sector.

The first scientific discipline mobilized (over time and in terms of volume of production) in these works is economics. Researchers belong to very diverse schools of thought such as welfare economics, institutional economics, neo-institutional economics, the French school of regulation. But the concept has also been caught by other disciplines inside (geography, management sciences, sociology, political sciences, law) and outside (ecology, agronomy) social sciences. For some disciplines like agronomy or sociology, research on multifunctionality could get more emphasis soon. Six streams have been identified from the selected documents:

Last, it can be noted that most of the reviewed studies relate to multifunctionality in agriculture, although some consider rural territories, and a few consider forestry.

Table 1. Classification of the main epistemic communities in France explicitly working on MFA

Epistemic communities and streams	Scientific disciplines	Research topics	Use in policy making	List of related functions	Weaknesses or limits	Other words or concepts	Related concepts
Joint production of commodities and public goods	Neoclassical economics (Welfare economics, neo-institutional economics, Environmental economics)	Efficiency of public policies or private arrangements to promote multifunctionality	Strong : main background used to justify public intervention for <input type="checkbox"/> multifunctionality purposes	Functions requiring public intervention in the light of welfare economics	Restrictive view of multifunctionality (mainly : contributions to environment)		Externalities Public goods Market failures Joint production
Multiple impacts / contributions of agriculture / rural areas / forest / land pasture to society, local community and environment	Agro-economics	<ul style="list-style-type: none"> o Assessment of impacts o Public or private actions that may promote or hamper Mfa 	Highlight the contributions of agriculture and the effects of policy measures for environment, employment, etc.	Wide-ranging lists of functions, collating all identifiable contributions or positive impacts	Does not seek to evaluate all the impacts of a public measure (on prices, etc)		Multiple contributions / effects
Joint production of commodities and identity goods	'Old' institutional economics	<ul style="list-style-type: none"> o Conditions for producing and trading such goods o Determinants of public-policy reform 	Useful for the understanding of policy making processes	Set of identity goods	Restrictive view of policy change's determinants		Market and non-market outputs
Farmers strategies and practices	Agronomists Economists	to what extent the recognition of MFA has led to changes in farmers' practices	Useful for the understanding of impacts of policy measures on environment, employment, etc.	Set of "good practices"			Technical choices, livelihood systems
Social demands towards agriculture	Economics Management sciences Geographic economics	<ul style="list-style-type: none"> o identification of social demands o How agriculture can address them 	Useful for the understanding of the supply side of Mfa	Expectations from various social groups towards agriculture			Social requirements or expectations Sustainability
Roles of agriculture to be officially addressed by public policies	Agronomy Agro-economics Political sciences Epistemology Research in law	<ul style="list-style-type: none"> o Consistency of this objective (promoting multifunctionality) with current policy (CTE) or other objectives o Mfa as a new paradigm o Implication for the renewal of holding economic models 	Useful for the understanding of the efficiency of a policy regarding its objectives	Set of functions of agriculture explicitly mentioned in public policies	Doubts from scientists on the scope of the will of public administration at national and UE level to really promote non – production function of agriculture		Multiple contributions

Summary of the national report from the Netherlands

1. Introduction

Conceptualisation of multifunctional agriculture in Dutch policy and research has to be understood within the typical Dutch context and can be related to different perspectives on agriculture and the rural area. The Netherlands is a dense populated country with a very productive agricultural sector, exporting most of its production. Limited space, the needs for and side-effects of agricultural modernisation and increasing societal demands towards food and the rural area have since long set the debate.

2. National context

The modernization perspective (also referred to as rationalization or productivism and described in terms of industrialization) has dominated Dutch agriculture for decades since the 1950's. Its main aim was the production and marketing of cheap (i.e. internationally competitive) food products of standard quality (so-called bulk products with relative low value added) by agro-industry. Within this model primary agriculture became a supplier of cheap raw material for agro-industrial purposes. The increase of production volumes (scale enlargement, specialization and intensification of land use) dominated as a strategy to maintain income parity at farm level (Roep, 2000; Ploeg, 2003). This perspective was widely shared and advocated as the only viable strategy for farm households. It was enhanced by policy, research, education and extension (Leeuwis, 2002; Ploeg, 2003; Roep & Wiskerke, 2004). Seen from this narrow perspective Dutch agriculture has been quite successful, but the growing volume and intensity of production also created a range of problems.

The loss of nature and landscape values due to massive reconstruction schemes of the countryside for merely productive purposes was already questioned in the early 1970's. In 1975 this resulted in a national policy scheme for the conservation of nature and landscape on farm land in designate areas with acknowledged nature and landscape qualities. Income compensation payments were paid to farmers willing to conserve nature and landscape on their farms. This was referred to as an integration of agricultural production and nature and landscape conservation as opposed to spatial segregation of functions, creating separate areas for high productive agriculture and nature reserves. Since then these two basic strategies, integration of agriculture with nature and landscape versus segregation, have dominated the Dutch policy and research agenda, although in changing appearances (Dekker, 2002).

But from the 1980's onward, agriculture was confronted with a variety of problems: environmental pollution, loss of food culture and food quality, food scandals, animal diseases, problems with animal health and animal welfare, and so on. In the meantime society had changed as well. This was expressed in growing concerns and distrust as well as different (new) needs and expectations towards food production and rural areas.

In the 1980's this attention for other goals or (non-productive) functions of agriculture was conceptualized in concepts like agriculture with a broader objective, integrated agriculture, alternative agriculture, followed by sustainable agriculture and multiple land use in the late 1980's and early 1990's. Modernisation was more and more questioned for its mono-functional, merely productivist perspective towards agriculture and the countryside. Modernisation thus increasingly ran counter to its societal limits. The obvious was questioned: agriculture needed a new 'license to produce' from society (Frouws & Leroy, 2003). The above problems had already provoked a range of interventions, measures and restrictions to avoid or overcome these side effects: introduction of production rights and quota systems, environmental measures and emission reducing techniques, nature and landscape conservation schemes protecting valuable landscapes, animal welfare standards, food safety measures, etc. But this did not solve problems. On the contrary, these rigid rules and regulations created new problems for agriculture: a growing administrative burden, inflexibility and increasing costs. At the same time value added generated in the agro-industrial supply chain was under severe pressure due to bulk production, overproduction, changing consumer's demands and changing policies as part of world trade negotiations. Agro-industry faced a difficult shift from bulk products for a globalising market to products with more value added. This put pressure on prices for off-farm deliverables (raw material) and subsequently family farm incomes.

So, since the midst of the 1980's costs at farm level increased considerably, while revenues stagnated or even decreased. This income squeeze (Ploeg *et al.*, 2000) urged farmers to look for alternative development and income strategies aside from or outside the agro-industrial value chain. They developed and engaged themselves in several kinds of promising (new or revitalized) activities serving particular consumers or societal needs and functions: on-farm processing and direct sales, marketing of high quality products, management of nature and landscape, farm integrated care activities, organic farming, energy production, and so on. In the 1990's these strategies were conceptualised in terms of rural innovation, rural development activities (broadening, deepening and regrounding; Knickel & Renting, 2000; Ploeg & Renting, 2000; Ploeg *et al.*, 2002) and lately green services (Dagevos, 2004).

To some extent farmers were encouraged to do so, e.g. by policy schemes stimulating rural innovation and subsidising related investments. However, this also resulted in controversies among farmers, politicians, scientists, agro-industry, nature conservation groups, consumer groups and other stakeholders. This has triggered a still continuing debate whether agriculture could fulfil and should meet all kind of (new) needs and functions and whether this represents a promising, sustainable way out of the crisis in agriculture (a rural development perspective). Or that, alternatively, producing raw material for the agro-industrial value chain as efficient as possible, by means of ongoing scale enlargement and cost price reduction, is still the most promising development strategy in making agriculture sustainable. This is a plea for further modernisation, but one that accounts for some basic social demands with respect to environment, animal welfare and food safety in obtaining a new 'license to produce' from society, a socially responsible agriculture. This is a neo-modernisation perspective.

Others, in turn, argue that an export orientated, low value added agriculture has no future in the Netherlands because it cannot compete at cost price any longer and because there are other needs and functions at stake in rural areas (e.g. residence, recreation, nature, infrastructure and so on) that are backed by a powerful demand (wealthy citizens, consumers, real estate developers, etc.). The diverse, often conflicting spatial claims have since long been studied and framed in terms of multiple use of space (Korevaar & Van Loenen, 2003; Korevaar *et al.*, 1999; Vereijken *et al.*, 2000).

Although multiple demands and functions are heavily debated in the Netherlands, the concept multifunctional agriculture appeared only for the first time in a study of Dutch Agricultural Research institutes in 1996 concerning a research agenda for MFA (Vereijken *et al.*, 1999a; Vereijken *et al.*, 1999). This study was initiated and financed by the Ministry of Agriculture, Nature and Fishery, following the EU agenda to adjust the CAP in terms of MFA in order to meet demands in world trade negotiations. In this context (WTO) the OECD has conceptualized MFA in an extensive OECD-report almost exclusive in economic terms and (world) trade negotiation issues. Only recently some economic theory based and policy-oriented studies in the Netherlands have focused explicitly on the concept of multifunctionality of agriculture (Vereijken, 2002). Furthermore some research focuses on multifunctional farming systems.

Of course similar developments and conceptualizations took place all over the world, but there is a clear Dutch angle. The Netherlands is a relative small, densely populated country, where agriculture is using about 75% of the national surface and realizing a relatively large production volume, depending on massive inputs and export markets (80%). So, there is a lot at stake and there a lot of different stakes. However, issues of environmental pollution, conservation of nature and landscape, spatial planning of multiple functions (integration versus segregation) and the future size and role of primary agriculture in rural area and agro-industrial value chain dominate current debate.

As already mentioned above, one can distinguish three main positions in the Dutch debate with respect to the future role of (primary) agriculture. A role defined by its future function within the agro-industrial value chain and its future functions in rural areas. All three positions entail specific claims towards policy and research.

The Neo-modernisation perspective conceives agriculture, both in analytical and normative terms, as a predominantly mono-functional activity driven by globalizing food supply chains and global competitiveness. Mono-functionality and ongoing scale enlargement are considered necessary to increase economic efficiency and to safeguard the competitiveness of the Dutch agro-industrial sector. If present at all, multifunctionality is restricted to the regional level and used to promote a segregation of functions and create space for undisturbed agricultural growth at the farm level. That is, without the burden or obligations to fulfil other rural functions.

In turn, the Rural Development perspective perceives agriculture as inherently multifunctional, i.e. the technological mediated interaction between man and nature co-produces all kind of (known and unknown, intended and unintended, desired and undesired, positive or negative) coherent set of social and material effects. Thus, agriculture has potential to integrate multiple functions of a diverse nature, also non-food, non-agrarian and non-land-based ones. At the same time agriculture is subjected to an income squeeze: costs rise and while the share in value added of the agro-industrial chain reduces. The contribution of agriculture to new societal demands or functions is thus seen as highly relevant for sustainable farming and attractiveness and liveability of rural areas. From this perspective specific attention is given to (new or revived) farm-based rural development activities along the dimensions of broadening, deepening and regrounding that sustain farm family incomes, strengthen rural economies and respond to new societal demands at large.

This shift away from primary agricultural to other activities and rural entrepreneurship is also envisioned in the third, less unified, perspective, but more radically. Agriculture will more or less disappear. First because the agro-industrial value chain will not survive in globalized markets and second because of powerful, urban-based public and private functional claims on rural areas other than agricultural (Vereijken & Agricola, 2004).

Nowadays the urge for fundamental changes in agriculture to respond to new needs and functions is widely acknowledged in the Netherlands. The complex nature of comprehensive technical and institutional changes at different levels, involving diverse actors with different stakes, is recently (re) conceptualized in policy and research as a desirable transition towards a sustainable agriculture (Roep & Wiskerke, 2004). The outcome and path of transition are, however, still heavily debated.

Dutch policy towards agriculture and rural area is quite diverse either. Although neo-modernization is still dominant, policy is supporting different perspectives at the same time. It wants to sit on the fence, run with the hare and hunt with the hounds. The typical Dutch solution to this problem is spatial differentiation in planning and policy schemes: areas with more favourable conditions for ongoing modernization (practically monofunctional areas) and areas with less favourable conditions where different functions are to be integrated.

3. Main epistemic communities dealing with multifunctionality

In the Netherlands three main epistemic communities in policy and research can be identified. Only the community of economic scholars work explicitly with the concept of multifunctionality in relation to agriculture. The other two work with concepts that in fact do study multifunctionality of agriculture and rural area. These are:

A community of economic scholars, divided in different subdisciplines, is working explicitly with the concept of MFA from merely a theoretical angle and studying its applicability in a new policy framework. They are responding to the introduction of the

concept in the EU in the context of WTO negotiations and reform of the CAP. The OECD and FAO reports are the main points of references.

A community of scholars, studying multiple functions and multiple use of space. This has a long-standing tradition in the Netherlands. Core disciplines are urban and rural planning, landscape architecture and social geography.

A community of rural development studies, that is more interdisciplinary with scholars from rural and development sociology, institutional and regional economy, geography and agro-ecology. These scholars are part of a growing international network.

4. Multifunctionality and sustainability

Sustainability, and more currently transition to a sustainable society, is the prevailing concept in policy and research. It is used as a concept for assessing particular developments. The same goes for the concept of rural development, although this is less common. Multifunctionality (or monofunctionality) is thus assessed on its contribution to a sustainable rural development.

5. Conclusions and discussion

Little interest has been given to the concept of multifunctionality of agriculture in The Netherlands so far, neither in the political debate nor in scientific works. The economic community is the only one dealing explicit with the concept in their work and this is mainly policy-oriented. The other ones that have been identified (scholars studying multiple functions and use of space and community of rural development studies) work with concepts that in fact do study multifunctionality of agriculture and rural area without referring to the concept.

In general, researchers and politicians still stick more to other concepts such as multiple use of space or externalities of agriculture, more related to the specific Dutch context, notably characterized by a high population density leading to land-use conflicts, an increasing loss of competitiveness of farming and environmental pollution caused by agriculture.

In different perspectives towards agriculture and rural area, multifunctionality of agriculture is assessed differently with respect to its contribution to a sustainable rural development. This sets the political as well the research agenda.

Table 2: Classification of main epistemic communities in the NL explicitly working on MFA or on related concepts

Epistemic communities	Main conceptual aspects surveyed	Disciplines / theoretical fields	Leading research questions	Use in policy making	List of related functions	Weaknesses or limits	Other words or concepts used instead	Related concepts
<p>Explicit working on MFA-concept</p> <p>1. Economics community</p> <p>(relative small, theory driven community)</p>	<p>Joint production</p> <p>Externalities of agriculture</p> <p>Non-trade concerns</p> <p>Multifunctionality as paradigm for agricultural policy</p>	<p>Agricultural economy, (Neo-) institutional economy</p> <p>Environmental economy.</p> <p>Other disciplines interest in MFA often linked to future research agenda of national research institutes</p>	<p>- To what extent is agriculture characterized by joint production?</p> <p>- To what extent is agriculture characterized by positive and negative externalities?</p> <p>- How to legitimize policy support for agriculture?</p>	<p>Predominantly contributing to international policy debates. At the national policy level still of minor importance, although attention is growing</p>	<p>Broadly defined with specific attention for nature, landscape and water management</p>	<p>Primarily driven by theoretical concerns, relatively little attention to assess functional integration and combinations of functions empirically</p>	<p>Following the OECD and FAO</p> <p>Theoretical frameworks</p>	<p>New institutional arrangements</p>
<p>Related concepts</p> <p>2. Multiple use of space</p> <p>(community with a long standing tradition)</p>	<p>(Changing) spatial functions</p> <p>specific attention for functional integration and combinations of spatial functions</p>	<p>Urban and rural planning, landscape architecture, social geography</p>	<p>How/where/when can functional integration contribute to maintain attractive and sustainable rural and urban living areas?</p> <p>spatial planning in meeting changing societal demands</p>	<p>Input for national debate on the pro's and contra's of integration of functions as a way to deal with the scarcity of national land and spatial resources</p>	<p>Broadly defined with specific attention for nature, landscape, leisure, water management, expansion of living areas and infrastructure</p>	<p>Little attention for multifunctionality of agriculture, more focused on the potential of functional integration at local and regional level instead of farm level</p>		<p>Multiple use of space</p> <p>Green and blue rural services</p> <p>Public-private partnerships</p>

<p>3. Rural development (based on sustainable agriculture)</p> <p>(heterogenous community of growing importance)</p>	<p>Changing role of agriculture in food supply chains and rural regions</p> <p>Agriculture as co-production of men and nature</p> <p>Responses to new societal needs</p> <p>Farm c.q. household strategies</p>	<p>Rural sociology, (Neo-)institutional economy, Regional economy, (Social) geography, Agronomy, Agro-ecology</p>	<p>Which societal needs or functions does and can agriculture provide? (food/non-food, agrarian/non-agrarian, landbased/non-land based)</p> <p>How can combining functions or functional integration contribute to SARD?</p>	<p>Socio-economic impact of MFA and its potential to contribute to SARD, the construction of policies based on the paradigm of SARD</p>	<p>Broadly defined with specific attention for functions representing (potential) public and/or private needs and markets</p>	<p>Lack of 'evidence' on multifunctionality due to prevailing sectoral approaches in statistics</p> <p>Growing problems with the delineation between agriculture and other activities or functions</p>	<p>Integrated agriculture</p> <p>Broadening of agriculture</p> <p>Conservation agriculture</p>	<p>Deepening, broadening and regrouping of agriculture (RD-triangle)</p> <p>Livelihood-strategies</p> <p>Asset specificity</p> <p>New institutional arrangements</p>
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Summary of the national report from Poland

1. Introduction

In Poland, rural areas are undergoing a gradual process of disagrarisation, but agriculture remains a dominant factor. The level of the inhabitants' income and prosperity is influenced by the agricultural sector in a more or less significant way. The size of the labour force employed in agriculture is an object of controversy - also among specialists. GUS, the Central Bureau of Statistics, estimates employment in agriculture at 27 per cent of the total active population, based on a 1996 agrarian census. More precise estimations, measuring actual involvement of people living on farms in agricultural production, put the figure much lower - at about 13.6 to 18 per cent. In this regard, too much labour is tied to Polish agriculture. The spatial structure of agricultural holdings has crumbled. The number of farms amount to 2 million and an average area is around 8 hectares. Thus, objectives of multifunctional rural development are set on the above perspective, and the majority of concepts used in research works and in policy documents designing multifunctionality relate it to rural development.

2. Historical and cultural context

After the 2nd World War up till the late 1980s, the development of the socio-economic system in the Central and East European Countries remained under the Soviet Union's influence. As the change from the system of planning economy to the market economy was made in 1989, Poland implemented the objectives of the free market economy. Thus, emergence and the development of the concept of multifunctionality has to be related to changes within the political system and industrialization processes, which brought both positive (new workplaces) and negative effects (one-sided development of industry and cities, degradation of socio-economic rural structure).

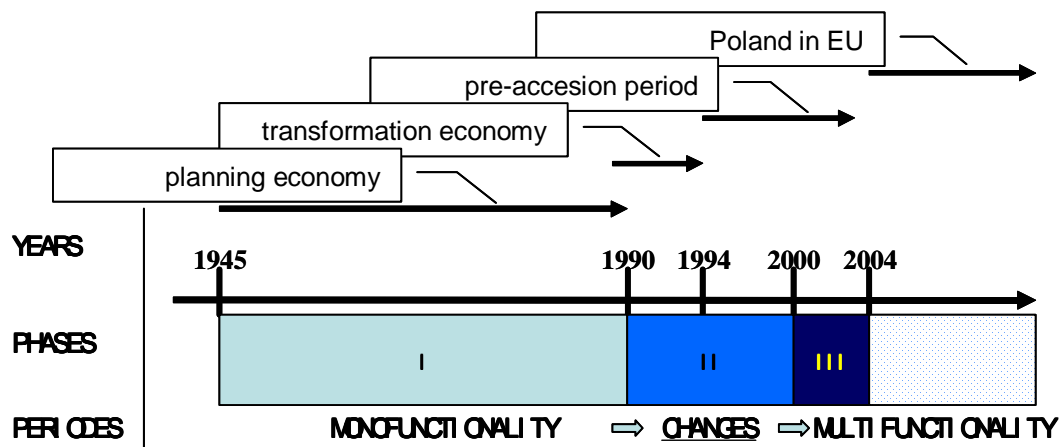
In this regard, one can distinguish three phases regarding research conducted on multifunctionality (fig. 2):

Phase I the period from 1945 till 1989

Phase II transition period from 1990 till 2000

Phase III 2001 -2004

Figure 2. The three phases of research on multifunctionality



The first phase is characterized by an almost absence of postulates and research on multifunctionality of rural development. The rural areas development was exclusively linked to the development of agricultural productivity at that time.

Thus, the concept of multifunctional rural development occurred in the late 1980's, as a response to the difficulties of the model of development. The main aim of rural development was to abandon agricultural function as the prior one. In this second phase, few researchers conducted some works explicitly on multifunctional rural development, and some of the concerns of multifunctionality of rural areas development were implicitly integrated in governmental documents.

The use of the concept has become more common in the third phase (pre-accession period), coming from research driven by the process of Poland's unification to the European Union's structures, the use of pre-accession funds and currently the CAP instruments and structural policy concerning the issue of rural areas' development.

Research works as well as political debate on multifunctional development of rural areas (referring explicitly to this concept or not) often deal with specific Polish issues. Thus, rural areas in Poland are diversified with reference to the spatial diversification of economic structures (Lewczuk 2003)). The central and central-western part of Poland is characterized by the highest rates of development (GDP per inhabitant). The majority of these rural areas struggle with the typical restraints of being situated in peripheral areas, remote from the economic centers (Duczowska-Małysz, 1994; Duczowska-Małysz 1998; Piaseczki, Konieczny 1995): capital deficits and the lack of ability to gather assets, which can be used for investments; a monofunctional approach, which manifests itself in rich human resources, defined as registered and latent unemployment rates combined with the agricultural structures which require a large workforce input; obsolete socio - professional structures, which comprises farmers and the population doing simple non-agricultural work; registered and latent unemployment; undeveloped business and institutional infrastructure; the lack of tradition and skills for creating and running their own enterprises and an unfavourable demographic situation, combined with a low level of education among rural communities.

3. Interpretation of MF at the policy level

During the system of planning economy, no support was given in Poland for rural areas development as such. The first practical approach was undertaken in accordance with the Phare Fund (Heller 2000). Progress was made as other pre – accession funds were made available, mainly SAPARD. Within the agricultural ministry, the efforts to elaborate the documents, defining aims and presumptions of rural areas policy, have been made. These documents specify objectives, priorities and rules of the integration process within European Union structures. The directions of redistribution of pre-accession and structural funds are set. Primary documents that comprise the concept of ‘multifunctionality’ are: The coherent structural policy of agricultural and rural areas development (1999), The National Pre – accession Programme (2000), The Operational Sapard Programme for Poland (2000). Currently, Poland as a member of the European Union, is implementing the objectives of the Sectoral Operational Programme (SPO) (2000) “The restructuring and modernisation of the food sector and the development of rural areas”, of which, the core issue is the sustainable rural development approach. This programme is accompanied by the Rural Development Plan, the Integrated Operational Programme of Regional Development, the Sectoral Operational Programmes of the “Enhancement of Competitiveness”, “Development of Human Resources” and “Environmental Protection and Water economy”.

4. Conceptions of MF in academic /research work

The concepts of multifunctionality within the Polish research can be divided in two groups, namely directly and indirectly related. The first group of concepts includes joint production and agri-business approach, while the second refers to the social issues of rural development.

Kostrowicki (1976) was one of the first authors to have stressed the idea of multifunctional rural development, pointed not only to the problems of rural areas, but also to their solutions. In the 1980’s, the broad approach with reference to the functions of rural areas was elaborated by Stola (1987). She concluded that the setting of the complex spatial – functional structures within rural areas, is in process. She underlined the matter of basic and supplementary functions within the structures of country settlement. In the 1990s, Stasiak and Kulikowski (1996) undertook a comprehensive approach.

For Kobialka (2003) the concepts of multifunctional rural development include the process of revitalizing the rural areas through the provision of new workplaces within non-agricultural sectors.

More currently, the main objective of multifunctionality/development of rural areas is the improvement of economic and living conditions of rural areas communities. This goal can be attained by an increase in diversity of workplaces accompanied by an increase in income and the attractiveness of countryside as a place for living (Zarębski 2001, Wilkin 2000, Duczkowska-Małysz 1997, Rosner 1999, Heffner 1999). Therefore, issues concerning rural development can be found in Polish literature. Regional surveys have been carried out, which mostly consider the economic potential of rural areas and the multifunctional approach of rural development. Regional analyses of the units of NUTS II level were also conducted (Sobkow 2003, Łuczak Wysoki 2001, Wilkin 2000, Szczepaniak, Wigier 2000, Kłodziński 1994).

In Poland, the definition of multifunctional rural development considers the unification of non-agricultural functions within the rural space. In other words, agricultural issues are considered within rural development issues, and rural development cannot be perceived only as an increase in non-agricultural work places. The range of the definition is much broader, taking into consideration rural and agricultural issues.

For Heffner (1999) the main features of this multifunctional rural development in Poland contains:

- Agri- tourism (including farm tourism, eco-tourism, hotel industry, gastronomy),
- Nature protection (the conservation of landscapes, municipal services),
- Processing of wastes (getting recyclable materials back, composting, etc.),
- Trade (mainly food trade),
- Sustainable agricultural economy,
- Forestry and fisheries,
- Use of natural energy resources (the delimitation and restriction of their use and seeking alternative and renewable sources of energy).

5. 'Sustainability' and 'Multifunctionality'

Within Polish research the definitions of the concept of multifunctionality and the one of sustainable development are quite similar, although within the concepts of sustainable development some issues such as environmental protection are more explicit.

There are various definitions of 'sustainable development'. The definitions differ in accordance with the various factors taken into consideration. In this regard, the most common factors are ecological or economic. 'Sustainable development' can therefore be defined in various ways and the term can encompass: eco – development, permanent development and an integrated framework (Fiedor 2002). The broadest term used is 'permanent development', which requires the balance between economic, social and environmental quality issues and maintenance of natural resources for future generations. In this regard, 'permanent development' must be sustainable and must fulfil the requirements of an integrated framework taking into consideration basic aspects of development: social, ecological, cultural, spatial and institutional interference among them. Success of the sustainable development approach depends upon equal treatment of all frameworks. Giving prominence to one framework (e.g. economic) would lead to social and ecological problems on the long term (Wiatrak 2003). Within the Polish scientific literature 'sustainable development' is defined as development, which reconciles nature and economy objectives with economic activity (Kozłowski Konceptcja 1989). Sustainable development leads development of rural areas, which means 'adding' to regular agricultural activity other production areas (diversification in agricultural activities), in order to achieve an agribusiness approach. The main activities combined with this approach are: processing of agricultural products, investments designed to improve agricultural and processing activities, trade of agricultural products, the specialization of agricultural productivity, agri-tourism, landscape preservation and natural heritage conservation (Szczepaniak, Wigier 2000). Rural areas, by taking over the agricultural and non- agricultural activities, contribute to the decrease of unemployment rate and enhance the entrepreneurship among rural communities. However, multifunctional rural development includes both agricultural and ecological aspects related to recreational and settlement activities (Zarębski 2001).

6. Conclusion

Within the Polish scientific literature the main issue of multifunctional rural development is defined as the improvement in living and working conditions of the rural population which can be achieved in various way (table 3 - national concepts of multifunctionality)

In Poland the development of the concepts of multifunctionality occurred simultaneously with changes in the economy system in the late 1990s. The literature on the subject indicates that the definitions of multifunctional rural development apply to the development of non-agricultural economic activities of the rural population. Although initially the activity related to food production was the only one that was taken into consideration, subsequent development of multifunctional activities included service aspects as well (mainly ecological and environmental services). In the recent past, the concepts were developed and related to the integration process and the ability to use pre-accession funds. Currently the instruments of the CAP and structural policy have been added, within which the activities for the rural areas development are unified. The conceptions of multifunctionality that relate in direct or indirect ways to the rural development have also been recognized.

Works on multifunctionality relate mainly to joint production, to the addition of new activities to production areas (diversification of agriculture) and more generally to the agribusiness development (food industry, agricultural supply, processing and retailing) in rural areas. However, the definitions not directly related to MFA can also be recognised. Those consist of the concepts of rural development in relation to agriculture and social issues. The social aspect is perceived in two ways: (i) the increase in the activity of farmers (creation and development of alternative source of income for farmers), (ii) the development of ecological function, social infrastructure, and agribusiness, that have to serve those purposes to the rural community. Depending on the scientific disciplines, we can identify the following concepts: 'spatial order', 'local development', 'development of community', 'eco-development', 'the concept of revitalization'.

Table 3. Classification of main epistemic communities in Poland working explicitly on MFA or on related concepts

Scientific communities /research approach	Main conceptual aspects of survey	Disciplines / Theoretical fields	Leading research question	Use in policy making	List of related functions	Weaknesses or limits	Other words or concepts used instead	Related concepts
<u>Directly on MFA</u> Economics community (Micro)	Joint production; Adding new activities to productivity areas (diversification of agricultural and non- agricultural activities);	Economics; Agricultural economics	► on which basics is the agricultural production diversified? ► what is the way to develop agricultural market?	► Strong: the enhancement of economic growth; ► technical change	Functions: welfare economics, The development of enterprises, within new economic areas, results from the 'multiplying effect'		New economic areas Multiplying effects	Join production
<u>Directly on MFA</u> Economics community (Macro)	Development of components of agribusiness on rural areas: agricultural supply, processing activities New market creation	Economics; Development economics	► how to create new market? ► how does the development of agri-business influence on multifunctionality?	► The research demonstrate the results of agri-business development	Agribusiness; Development and specialization of agribusiness production (in local, regional, national and international scale)		Diversification in agricultural activities	Regional development Agribusiness development
<u>Non directly on MFA</u> Rural development (sustainable agriculture 'Agricultural definitions')- SARD	The development of agriculture The development of non- food sector of agricultural production	Socio –economic based on philosophy Neoclassical economics Socio-economic	► creating new work opportunities, an increase in the income of rural population; maintenance of the natural environment, improvement of living conditions, protection and enhancement of cultural heritage ► the activity of the surpluses of workforce is consistent with the definition of the labour market of the multifunctional rural areas development	► highlight the increase in efficiency of agricultural production, introduction of control measures, development of social and technical infrastructure, and establishment of institutional framework in order to meet the demands of economic subjects ► contribute to the creation of new work places	Functions: Establishment of institutions Technical infrastructure Non-agricultural activity	The definition combined with the changes in agriculture Taking into account only farmers perspective	Activity The alternative source of income for farmers Non – agricultural activity	Agricultural economics Market and non-market indicators
<u>Non directly on MFA</u> Rural development (social area) 'Social definitions'	<u>I Social</u> development (Human development) - ecological functions - socio-infrastructure - agribusiness - landscape	Socio-economics Political science Agri-economics agronomy	► renewal of countryside'. The renewal of the countryside is focused on human indicator and endogenic features, which are the basis of the microregion development strategy. ► protection and enhancement of cultural heritage ► relates the multifunctional definition to the meaning of rural infrastructure and settlement's network with reference to the level of development of rural areas,	► strong: Responding to communicational, safety needs ► highlight that the advanced process of urbanization is connected with the improvement of the socio – technical state of rural infrastructure, resulting from structural changes	Functions: Regional policy Agri-tourism, environmental Socio – technical infrastructure Social, environmental, agricultural and ecological functions landscape/nature service		Multidimensional Regional development Development of infrastructure	Local and regional development Urban and rural development
	<u>II Social</u> development (activity): alternative source of income for farmers non agricultural activity	Socio-economic Political science	► how to support rural population? ► what is the best way to activate rural population? ► how to provide alternative source of income for rural population?	► improvement in living and working conditions of rural families	Local policy Social, environmental, agricultural and ecological functions related to recreational and settlement activities	It relates only to the people working in agricultural sector	Development of rural population	Social requirements

Summary of the national report from Spain

1. Introduction

A review of Spanish scientific literature on the concept of *multifunctionality of agriculture* faces the initial difficulty that very few studies explicitly include the expression *multifunctional* or *multifunctionality*. This may be because the problems associated with the non-productive functions of agriculture have only belatedly become the object of theoretical reflection, as a consequence of the ample possibilities of modernisation and development of its productive potential that Spanish agriculture still showed when in 1986 Spain joined the European Community. Though relatively abundant, scientific publications on the non-productive functions of Spanish agriculture do not usually mention explicitly their inclusion in the context of a general debate on *agricultural multifunctionality*. The scarce studies directly addressing theoretical or conceptual *multifunctionality* have been mainly the work of economists and economics-oriented agricultural engineers³ and have been cast in the mould of the OECD research program. They constitute the *core* of the scientific research interested in the *multifunctionality* of agriculture in Spain. On the other hand, it is relatively easier to find published works dealing with issues of great importance for a fair understanding of the different functions performed by farming in the specific Spanish conditions, the authors of which have not bothered with conceptual matters. Different scientific communities share this *second circle* : economists, agricultural engineers, sociologists, geographers and natural scientists. Some of them are really concerned with *multifunctionality* as such, others do not even use the word but share the view that agricultural studies should embrace a territorial perspective and/or not be confined to a productivist approach. Research dealing with the complex relationship between agricultural production and wild flora and fauna, or having to do with rural development, valuation of agroforestry environmental products, and landscape transformation by farming, belong, among others, to this category. Finally a *third peripheral circle* may be found, made up of a great variety of different scientific communities whose research work is indirectly contributing to increase the pool of knowledge on multifunctionality-related issues, but without doing it purposely. Papers dealing with the conditions that favour or check erosion processes, or that debate alternative irrigation water management schemes, or that explore the changing of farmers' professional identities could be placed here. Some older papers that refer to agriculture's contribution to Spanish economic development could also find their place here.

2. National context

Productivism lies at the heart of most policy-oriented papers on Spanish agriculture. Perhaps it can explain the relatively scarce numbers of published works dealing with the conceptual or theoretical basis of *multifunctionality*. But this scarcity does not translate to a paucity of works concerning the specific non-productive functions of Spanish agriculture. As has been said before, a quantity of research work exists regarding the relationship between agricultural systems and biodiversity, environmental impacts of farming, rural development, and, more incipiently, landscape effects of agriculture. Academic ecologists, sociologists, geographers, agronomists and economists have made substantial contributions to this vein of literature, that has been reviewed in the *Spain's State of the Art Paper (SSAP)*. The revealed

³ It has to be noticed that there is a long standing tradition in Spain of research on agricultural economics being done not mainly in the Faculties of Economics, but in the Departments of Agricultural Economics and Sociology of the Agricultural Engineering Schools.

preferences of researchers for some topics, like the effects of agricultural intensification on the preservation of wild flora and fauna can be better understood taking into account that historical evolution has preserved in Spain a higher proportion of agricultural systems of extensive character than is usual in the rest of Western Europe, and with them a rich variety of ecosystems and natural habitats. Among these systems are the *dehesa*, in the South-west, the mountain pastures in the North, and the dry agriculture that extends along the Castilian Plateau, in the centre of the country.

The background of current academic reflections on agricultural trends and on the role of farming in the Spanish society can be briefly stated. The Spanish agriculture completed in the 1970s a transition from the *semi-natural* conditions of the 1940s, when very few *inputs* were used from outside the sector, to a modern agriculture, capitalised and intensive in industrial inputs (Abad & Naredo, 1997). Spain's entry into the EC reinforced the trend towards the modernisation and commercial opening-up of the agricultural sector. The elimination of commercial barriers boosted the more competitive farm sectors, stimulating production for the export market, which in the case of Spain is fundamentally that of the EC. In products such as *olive oil* the percentage of production being exported rose from 26 to 62% between 1985/86 and 1998/99, and in *green vegetables* from 19 to 52%, while *fruit*, where percentages somewhat higher than 20% had been maintained since the 1960s, took a great leap forward, rising from 23 to 52 % (Reig & Picazo, 2002).

Farm output prices have generally increased less than consumer prices, thus moderating the real income growth generated by the increase in agricultural output. However, the steep reduction in the use of labour has raised substantially the individual remuneration of agricultural labour, which has achieved substantial convergence with the European average. At the start of the 21st century, the number of AWUs ("Annual Working Units") employed by Spanish agriculture is only a third of what it was thirty years ago. It should be pointed out that the aforementioned *convergence* corresponds to income per Annual Working Unit, but that the average number of AWUs used by most Spanish farms continues to be lower than the European average. At any rate, and according to the data from the *National Statistical Institute*, the *Net Disposable Income* of agricultural households is now similar to the Spanish average.

2. Interpretation of *Multifunctionality* at the policy level

Multifunctionality as a highly relevant concept, orientating a new vision of agricultural policies, has not had much impact on the positions of the Spanish Agricultural Administration. A view more orientated toward the development of the productive capacities of the agricultural sector has been predominant, and non-productive functions have been mainly considered as an alternative limited to the less competitive agricultural areas. The Spanish Central Governments have been more concerned with maximising the inflow of money from CAP's first pillar, to enhance farmers' income and cushion the effects of liberalisation of agricultural markets. For this reason, in a recent paper signed by the former Minister of Agriculture (Arias, 2003), on the Spanish position regarding the latest reform of the CAP, the references to multifunctionality are minimal, and abstract, while the emphasis is placed on the negative consequences – risk of abandonment of farmland – that would stem from total decoupling of subsidies to farms. Despite this, the recently published *White Book on Agriculture and Rural Development* (MAPA, 2003) characterises agriculture as multifunctional, and mentions the environmental public goods produced by Spanish agriculture, quoting among them CO₂ sequestration, and conservation of the landscape and of natural resources. It also mentions, as a *social function* of agricultural systems and as a positive externality, the maintenance of the population of depressed rural areas.

With the devolution of political powers to the Regions, rural development and structural and agri-environmental policies fall within the competence of the Regional Autonomous

Governments, that enjoy the freedom to design and implement their own programs according to the needs and particular circumstances of their regional farming sector.

The representation of farmer's professional interests is shared in Spain by three organisations : ASAJA (Agricultural Association– Young Farmers), COAG (Coordinator of Organisations of Arable and Livestock farmers of Spain) and UPA (Union of Small Farmers). These organisations occupy different positions in the political spectrum and express to different degrees “entrepreneurial” or “neo-peasant” discourses (Moyano, 2002). Whereas in the case of ASAJA concern for the agro-environmental problems of intensive agriculture is linked to the future economic sustainability of these systems of production, in the case of COAG and UPA the perception of the relationships between agriculture and environment is based on their social sustainability. In this view, agro-environmental policy is seen as a way of increasing the incomes of small farmers, and also of legitimising their function in the conservation and energising of rural spaces. All the organisations agree in exonerating the agricultural community of the environmental damage caused by intensive agriculture, placing the solution in the domain of science and technology (Garrido & Moyano, 2000).

In a sense, *multifunctionality* has been interpreted by policy-makers as a policy approach intended to complement the main drive towards agricultural modernisation and competitiveness, providing a basis for redirecting funds to less-favoured areas, and reinforcing the diversification of economic activity. *Rural Development* has been the focal point and the buzzword for all those policy-makers and academics that wished to express support for a policy design not strictly centred on the farm as a production unit, and able to consider the complex interrelationships between agricultural production, the environment and the social fabric in the rural areas. *Rural development*, with strong territorial overtones, has sometimes played a similar role in the policy debate in Spain as *multifunctionality* in other national contexts.

3. Conception of Multifunctionality in academic/research work.

3.1. Research directly focusing on multifunctionality

The Spanish research papers that have taken the direct approach to the study of *agricultural multifunctionality* have focused on one or the other of its three main distinctive facets:

- i) As a characteristic of the process of agricultural production, using analytical categories belonging to OECD work on *multifunctionality* like market failures, joint production, transaction costs and social welfare functions (Tió & Atance, 2001, Atance, 2003).
- ii) As an element defining a new paradigm for agricultural policies, with different implications for alternative systems of farm domestic support (Massot, 2003).
- iii) Through its consequences for international commercial relations, considering whether WTO *green box* criteria are too stringent and/or weak from an economic analysis viewpoint to preclude some policy measures in defence of multifunctionality (Compés, García Alvarez-Coque & Reig, 2002).

Most of this work does not represent a very idiosyncratic national contribution to the debate on the conception of multifunctionality, as it has been mainly inspired by the OECD conception and has drawn on the common pool of knowledge of international academic or institutional research . It is the reason why not much space has been granted in SSAP to it, emphasising instead the research dealing with specific agricultural functions.

3.2. Research dealing with the different functions performed by Spanish agriculture

a) *Productive functions*

The modernisation of Spanish agriculture occurred later than that of other industrialised countries, and took place basically during the last half century. In the Spanish literature the analysis of the productive functions of agriculture has not been limited to its role as supplier of foods and raw materials : supply of labour and capital to other sectors of the economy, and market creation for manufacturing products have also been considered (Leal *et al.* 1975, Abad & Naredo, 1997).

b) *Environmental functions and impacts*

The modernisation of Spanish agriculture gave rise to a double process of *intensification* in the most productive areas, and of *abandonment* in those of low productive potential (Varela-Ortega & Sumpsi, 1998). Entry into the European Communities is thought to have contributed to reinforcing this dualism.

Negative externalities linked to livestock and crop intensification are not widespread, and affect mainly some Mediterranean regions highly specialised in intensive fruits and vegetables production, but two types of environmental impacts are of distinctive importance for Spanish agriculture: irrigation and erosion.

The expansion of *irrigation* along the 20th century has been linked to the development of agricultural productive potential. Approximately 80% of Spain's water resources are devoted to irrigating a total of 3,6 million hectares. On this area, representing 15% of the total area in agricultural use, grows the equivalent of 60% of the total value of Final Agricultural Production, and 80% of agricultural exports. Currently the environmental and productive uses of water are clearly competing with each other. Negative environmental impacts of the use of water by Spanish irrigated agriculture include over-exploitation of aquifers, partial drying out of wetlands of great natural value and nitrate contamination of groundwater in areas of intensive arable or livestock farming.

Concerning the existence of a positive externality from agricultural production with regards to the prevention of the risk of erosion, the evidence is not conclusive (Cerdà, 2004) :

- (i) Data are still scarce and reflect local studies with a too short time span of measurement, but most of the authors point out higher erosion rates under cultivation than under natural vegetation cover
- (ii) Greater rates of runoff and sediment loss should be expected in hills cultivated with perennial crops, like vines and eucalyptus. But olives can greatly protect hilly areas from soil erosion
- (iii) A general case in favour of cultivated land as being instrumental for preventing erosion cannot be made according to the available scientific evidence
- (iv) Conversion of cereal land to agroforestry systems, with extensive livestock and game husbandry can be part of the solution to avoid land degradation

c) *Landscape*

More extensive research must still be done in this area. Different groups of users, including livestock farmers, have been shown to display different preferences regarding the structure of the landscape.

d) *Biodiversity Protection*

Recent research by Spanish natural scientists is focusing on the relationship of biodiversity and agriculture, pointing also to the risks posed by rapid technical change and intensification for the survival of valuable species. Some specific agricultural ecosystems have received special attention :

- (i) *Pseudosteppes* are important in inner Spanish regions, and are characterised by a great variety of habitats, including cereal crops, dry legumes and winter and 3-5 year fallows. They represent an important habitat for some birds species of European conservation concern. The dismantling of the current income support system for arable crops will probably produce two main consequences : intensification pressure would increase in the more productive cereal areas, through irrigation and farm amalgamation, and marginal lands would be subjected to abandonment and sometimes reforestation. Biological diversity of the *pseudosteppes* would be reduced in both cases (Suarez *et al.* 1997).
- (ii) *Dehesas* are the most internationally renowned agricultural systems of Spain. They are agroforestry systems of the Southwest of the Iberian Peninsula that generate a wide range of commercial outputs and environmental uses.
- (iii) *Rice cultivation* is also important in Spain for biodiversity protection. As natural wetlands have been reduced, rice fields can serve as partial replacements.

e) Rural development

Rural development can be understood in two main ways :

- (i) on the one hand it is related to the *will* of the authorities to drive policies that will endow rural areas with environmentally sustainable economic dynamism,
- (ii) on the other, it touches the *transformations* of the economic and social fabric of the countryside in response to technological changes and new social demands.

Regarding its policy aspects, the increasing bias in favour of rural development that can be observed in the CAP has to do with the preservation of the *European model of agriculture*, related to the maintenance of family farms, and the economic vitality of the countryside. But, it has been pointed out that this *model* suffers from a lack of conceptual precision and faces the enormous heterogeneity of the rural spaces of Europe, in which not even the predominance of family based agriculture constitutes a universal feature. It explains why some scholars have preferred to link the most specific traits of the *model* to the persistence in Western Europe of the *social market economy* model (Massot, 2000).

Concerning the second meaning of rural development (ii), the Spanish experience has been marked by :

- (i) *A strong reduction in agricultural employment* . At the start of the 21st century, the number of working units employed by Spanish agriculture is only a third of what it was thirty years ago. Strong productivity growth and the slowing down of food demand have contributed to this result, that, not surprisingly, CAP support has not been able to counteract.
- (ii) *The evolution of agricultural incomes*. The incomes obtained by families have converged between rural and urban areas. Although direct subsidies per hectare have increased income in the rural areas, they have not served to stabilise the small marginal farms in some beneficiary areas, like the Duero region.
- (iii) *The rapid changes in the structure of farms*. The application of the CAP to Spain has speeded up the process of agricultural structural adjustment, wich was well under way when Spain entered the European Community, reflecting long-term economic

and technological changes. Those changes materialised in Total Factor Productivity being the principal determinant of farm output growth (Reig & Picazo, 2002). Between 1987 and 1997, according to the *Farm Structure Surveys*, the number of farms fell by 32,6%, against a decrease of 23,7% in the total of the EU-12, and the average size of farm grew from 13,8 hectares to 21,2. But the outsourcing or *externalisation* of productive tasks constitutes an alternative response to the pressure generated by the need to achieve economies of scale, which contributes to the survival of small farms, and limits in some cases the intensity of structural change.

Despite the importance of the processes of restructuring, strategies of diversification of production are not absent from the reality of rural Spain, though the concept of *diversification* ,- intra and extra-farm – has to be exactly determined and displays a wide range of different regional experiences (Arnalte, 1998).

4. Multifunctionality and sustainability

No global studies have dealt with the topic of the sustainability of Spanish agriculture. The lack of a commonly agreed definition of sustainability has made more difficult the developing of operational concepts in this area.

Concerns have been repeatedly expressed in Spain regarding the sustainability of intensive vegetable production in drought-prone areas, like Almeria, or signalling the loss of valuable ecosystems – wetlands - in the second half of the 20th century under the pressure of land cultivation expansion. Some researchers have also pointed to the contradictions between the payments made to the farmers in the *dehesas* under agri-environmental programs, and the incentives for livestock intensification arising from some CMO regulations.

Biodiversity can be considered as a part of the rich *natural capital stock* of Spain. It is linked to some specific traits derived from the existence and special management of particular agricultural ecosystems. But assessing the sustainability of current agricultural practices requires a good scientific understanding of the interaction between farming and the natural environment. Spanish researcher have made some efforts select agri-environmental indicators for extensive cereal and *dehesa* systems (Peco *et al.*, 1999). The suggested list of indicators do not measure changes in the *state* of the ecosystem, but rather changes in variables that *affect* this state. Some basic lessons have been learned in the process:

- (i) agri-environmental indicators in extensive systems should be applied at a county, or even a local or farm level,
- (ii) current agricultural statistics do not provide information for some extremely important indicators,
- (iii) many indicators are specific to each agrosystem.

From a methodological point of view, it is also important to emphasise the efforts to build up economic accounts specifically devoted to measuring the *sustainable total income* provided by agro-forest systems, that have arisen after a recognition of the multifunctional goods and services provided by *dehesas* (Campos *et al.*, 2001).

5. Conclusion

The Spanish debate on the conceptual and strategic ,- in terms of policy reform and international trade negotiations - aspects of *multifunctionality* has been comparatively scarce. On the other hand, the real *multifunctionality* of Spanish agriculture has been recognised since a long time and has stimulated a research effort with a strong emphasis in analysing the links between agriculture and biodiversity, and in discussing the impacts of agricultural

techniques and input use on the environment. A distinctive attention has also been paid to the competing productive and non-productive (i.e. ecological) uses of water. Public sponsored irrigation schemes were considered in the past the key to agricultural income growth and economic development in the countryside. Now, this vision enters in conflict with a new water culture that emphasises demand management of water resources and highlights the dangers of overexploitation and pollution of aquifers. It explains why the study of the rationalisation of agricultural water use is currently a burgeoning line of research in Spain.

The large room of manoeuvre still available in the 1980's for the modernisation and intensification of farming in Spain, was even enlarged by the Spanish membership of the EEC in 1986, and has contributed to the predominance of productivistic values. Research oriented to provide alternatives to *productivism*, or simply to widen the range of concern of farm-focused studies, has come mainly under the general heading of *rural development*. Several conclusions emerge from this literature on rural development:

- (i) the European *rural development model* displays important peculiarities, when it is being applied to Spain and other countries of Southern Europe. Some of the basic premises of *rural restructuring* do not adapt well to the Spanish case, in which "productivist" values still dominate,
- (ii) *diversity of the Spanish countryside* in the different regions, implying the existence of peculiar regional paths of adjustment and modernisation,
- (iii) wide popularity of the *application of local development initiatives*, with programmes of the *Leader* type,

While the political and academic circles are currently disseminating the modern approach to rural development - diversification of activities in response to new social demands, agro-environmental responsibility, search for alternatives to "productivism" - Spanish agriculture still seems to be immersed in an intense process of modernisation and structural adjustment, which other countries of western Europe have already been through. It makes difficult to apply a rural development model based on multifunctionality promotion to most of the Spanish agricultural systems. Some researchers have expounded the sequence of conditions required for multifunctionality as a successful policy reference and identified the sources of failure in specific areas (i.e. dryland farming in Castile-and-León). Their findings have led them to the questioning of the suitability of agriculture as the main channel for rural development, given the growing dissociation between farm income support and agricultural modernisation on the one hand, and rural vitality on the other (Moreno *et al.*, 2004).

Table 4. Classification of main epistemic communities in Spain working explicitly on MFA or on related concepts

Scientific communities /research approach	Main conceptual aspects surveyed	Disciplines / theoretical fields	Research questions	Use in policy making	List of related functions	Weaknesses or limits	Other words or concepts used instead	Related concepts
MFA	Joint production of public and private goods Market failures	Economists Agricultural Engineers	Efficiency of public intervention <i>versus</i> private arrangements to promote multifunctionality Adequacy of different policy tools to promote multifunctionality	Main background used to justify public intervention for multifunctionality purposes	Functions mainly related to land use	Restrictive conception of multifunctionality		Joint production Market failure Externalities Public goods
MFA	Non-trade concerns	<i>Economists Agricultural Engineers</i>	Legitimacy of non-trade policy targets according to their impacts on international trade Ability of WTO's "green box" provisions to allow enough room for implementing policies addressing multifunctionality	Important for the compatibility between domestic agricultural policies and trade liberalisation Relevant in WTO negotiations	Functions mainly related to the level of farm output	Restrictive view of legitimate policy tools, based on a debatable concept of "trade distortion"		Measurement of public support to agriculture Hierarchy of policies to address domestic targets grounded on welfare economics
MFA	Multifunctionality as a paradigm for agricultural policy	The views of an specialist in agricultural policy (Massot, 2000, 2003)	CAP reform with regards to current competing paradigms for agricultural policy	Background for analysis of CAP evolution and reform in an international context	Functions defined in both positive and normative ways	Conceptualisation of alternative policy paradigms remains elusive		European agricultural model Alternative models of CAP reform
Closely related to MFA	Rural development Farm diversification strategies	Economists Agricultural Engineers Sociologists Geographers	Structural adjustment of the farming sector and its consequences for the maintenance of rural population in less favoured areas Income and demographic dynamics of rural areas Assessing whether multifunctionality is (or not) a sufficient or necessary condition for rural development Regional differences concerning farm diversification strategies	Useful for the design of rural and regional policies	Productive functions related to food and fibre and other marketable goods (agro-tourism, etc.)	Includes goods and services that can be independently supplied by non-farmers Reveals a great diversity of regional experiences that is difficult to generalise		Farm and rural diversification Part-time farming Regional disequilibrium Farm structure and technical change Rural restructuring Alternatives to "productivism"

Closely related to MFA	Biodiversity protection	Agricultural Engineers Natural scientists	Biodiversity linked to specific agricultural systems Biodiversity changes related to the changes in farming techniques and production intensity	Useful for the design of agri-environmental programs Useful for assessing the impacts on biodiversity of a reduction in CAP's income support Scientific knowledge summed up in environmental and biodiversity indicators	Public goods linked to the protection of threatened species of flora and fauna	Lack of enough scientific knowledge concerning the interaction between biodiversity and the productive functions of agriculture High transaction costs in developing accurate policy interventions		Existence values for environmental goods Agricultural ecosystems
Closely related to MFA	Landscape creation	Agricultural Engineers Natural scientists	Appraisal of the most valued features of human created landscapes	Useful to obtain a better understanding of the welfare effects of farming sector changes (technical change effects, specialisation etc.)	Public goods Tourism	Few contributions yet		Cultural identities
Closely related to MFA	Multifunctionality of Agroforestry Systems	Agricultural Engineers Economists	Valuation of the commercial and non-commercial outputs of woodlands and <i>dehesas</i>	Discovering joint production processes Computing better economic accounts for agroforestry systems	Public goods Private consumption (landowners) of environmental goods Farm outputs of woodlands and <i>dehesas</i> Tourism			Sustainability of farm production in <i>dehesas</i> Optimal management of forests
Related to MFA	Environmental impacts	Economists Agricultural Engineers Geographers Natural scientists	Contribution of agriculture to erosion prevention Competing uses of water (i.e. irrigation <i>versus</i> ecological uses) Efficient ways to deal with water scarcity and to fight water pollution Other environmental impacts	Assessing positive and negative externalities of farming Design of efficient pricing systems for irrigation, and saving valuable water resources	Public goods	Inconclusive empirical evidence concerning the relative merits of farming <i>versus</i> natural vegetation recover in avoiding the risk of erosion		Natural resources New water culture
Related to MFA	Social changes in rural areas	Sociologists Economists	Analysis of the current situation and prospects of family farms New farmers' identities Strategies and attitudes of farmers' professional organisations	Assessing the social capital in rural areas Assessing the likelihood of farmers' involvement in agri-environmental programs	Social functions	Findings not easily related to the core aspects of multifunctionality		Social structure
Related to MFA	Analysis of agriculture's contributions to economic development	Agricultural Engineers Economists	Assessing the output, labour, economic surplus and market creation contributions of agriculture to Spanish economic development	A wider encompassing approach to agriculture's contribution than just the "food and fibre" point of view	Productive functions (including financial aspects)	Relevant mainly for an understanding of the historical background, not so much for current debates Scope restricted to productive functions		Economic development Terms of trade between farm and non-farm sectors

Summary of the national report from Switzerland

1. Introduction

Despite the fact that multifunctionality and sustainability are guiding principles of the Swiss agricultural policy and the terms are regularly used in policy debates, the number of Swiss contributions to the academic literature on multifunctionality is extremely small. Only few authors addressed the issue of multifunctionality, and even less investigated the relationship between the concepts of multifunctionality and sustainability. This is explained by the rather small academic community in Switzerland engaged in agricultural economics and policy analysis, and by the fact that the conception of multifunctionality evolved in the country as a political principle with changing social, economic and environmental conditions over the past decades.

2. National context

The understanding and interpretation of the multifunctionality of agriculture and the goals of sustainable development substantially depends on the historical and cultural context. This becomes evident, if one considers the changes in agricultural policy goals in Switzerland since World War II (cf. Table 5). Originally, these goals were restricted to food security, to the socio-economic viability of less favoured areas and to the protection of peasant property. Since the 1970s, food safety and environmental concerns became equally important. With the goal of long-term preservation of productive reserves, the objectives of the agricultural policy included a major issue of sustainable resource management. In the early 1990s, this movement reached the stage which is referred to as the concept of multifunctionality. This process has been completed with the establishment of multifunctionality as a normative principle in the new Federal Constitution of 1999, which determines together with the concept of sustainability the guidelines for further changes of agricultural policy.

Article 104 of the new Federal Constitution of April 18, 1999 states that “the Confederation shall ensure that agriculture contributes substantially by way of a sustainable and market-oriented production” to achieve its various goals. These are:

- a) the secure provision of the population with food;
- b) the conservation of natural resources and maintenance of the rural landscape;
- c) a decentralised settlement of the country.

The new constitutional framework is at the same time a manifestation of changes in agricultural policy goals since World War II and of the future orientation of agricultural policy reforms in the country. Correspondingly, interpretations of multifunctionality must be considered in the light of changing objectives and continuous policy reforms and adjustments since World War II.

3. Interpretation of multifunctionality at the policy level

In Switzerland, the notion of multifunctionality evolved as an important policy principle. It covers the multiple objectives which agriculture has to serve for. The new Federal Constitution requests that *the Confederation shall conceive policy measures in such a way that agriculture may accomplish its multifunctional tasks*. This clearly indicates that, in Swiss

policy, multifunctionality primarily constitutes a normative principle, which consists of a set of societal objectives that shall be achieved at the same time (cf. Table 5).

In addition, Swiss officials directly link multifunctionality to sustainability, saying for instance that “Switzerland, with its multifunctional agriculture, is on the road to sustainability.” However, neither the concrete meaning of the terms nor the relationship between the two concepts have been clarified and examined with the rigour of academic analyses.

Table 5. Changing objectives of Swiss agricultural policy (1947 – 1976 – 1999)⁴

Federal Constitution (1947–1999)	Fifth Agricultural Report (1976)	Federal Constitution (since 1999)
REGULATIONS IN AN OVERALL SOCIETAL INTEREST	<i>Just distribution of the costs of agricultural protection</i>	MULTIFUNCTIONAL TASKS OF AGRICULTURE
Preservation of a viable peasantry	<i>Securing the agricultural income</i>	<i>Soil and land cultivating small-farm enterprises</i>
Preservation of a productive agriculture	<i>Development of productive and efficient small-farm enterprises</i>	SUSTAINABLE AND MARKET-ORIENTED AGRICULTURAL PRODUCTION
	<i>Adjustment of production to the absorption capacity of the markets, and stabilisation of the markets</i>	
	Long-term preservation of productive reserves	
Strengthening of peasant property		Strengthening of peasant property
Protection of economically endangered regions		Decentralised settlement of the country
	Provision of the population with high quality food in normal periods	Food security and food safety⁵
Precautionary measures for war periods	Precaution for periods with disturbed imports	
	<i>Environmentally-sound production</i>	Preservation of natural resources and living conditions
	Protection and cultivation of the rural landscape	Cultivation of the rural landscape
		<i>Self-support with subsidiary policy measures</i>

⁴ The various objectives at the given time are classified in Table 5 as follows: The major objectives and guiding principles are emphasised with capital letters and shaded areas. Bold letters indicate main objectives, and minor objectives are presented in italics.

⁵ This interpretation does not necessarily come from the Constitution text, which calls for a “secure (food) provision to the population”. However, food safety is also mentioned in Article 104 of the Federal Constitution.

4. Concept(ion)s of multifunctionality in academic work

In Swiss academia, the concept of multifunctionality is mainly discussed by economists. They acknowledge that the notion of multifunctionality has originally been introduced in the GATT/WTO negotiations to establish that agriculture has other functions apart from food production, and that liberalisation of agricultural markets and trade should therefore not be the sole objective. However, various economists point out that the term multifunctionality has been put into political discussions without clarifying the concrete meaning. Moreover, they emphasise that the concept has been introduced without relying on economic analyses of the various functions and circumstances or concrete information about adequate policy measures. Also the number of empirical studies dealing with multifunctionality is extremely limited. Nonetheless, the small number of contributions shows a considerable variety of conceptions and points of emphasis, always dealing with the comprehensiveness of the challenge on a conceptual basis rather than with single issues and particular functions in isolation.

Early contributions emphasise the relevance of economic characteristics and social tangibility of the various functions of agriculture in different local settings and contexts, which is crucial for policy design. More recently, contributions in the field of agricultural environmental economics clarify the need of jointly taking into consideration the multiple functions of agriculture by providing a welfare economic analysis and information for policy design in the presence of both positive and negative externalities.

An OECD mandated review reveals that the jointness of production has mainly been investigated with respect to environmental issues. This gives evidence for physical linkages between agricultural production and effluent of pollution (negative externalities) and between agricultural production and the landscape (amenity benefits), while the degree of jointness seems lower with respect to biodiversity and is even less certain as far as decentralised settlement and equitable distribution of income are concerned. Other reviews present multifunctionality on a more conceptual basis with regard to political and scientific perspectives on both Swiss national and international levels, and in the context of ongoing WTO negotiations, respectively.

The most comprehensive among the few empirical studies in Switzerland provides a definition of multifunctionality which comprehends the economic values of productions for the market (economic function), enforcement of environmental benefits and reduction of negative effects (ecological function), and enforcement of benefits and reduction of negative effects for society (social function). It captures effects that are usually referred to as true externalities, pecuniary and spill-over effects, and resource rents or royalties. The latter is a fundamental concept of natural resource economics, and measures the value of the resource base (land) which goes as income to the resource owner, and therefore must not be included in the assessment of external costs and benefits. Yet, if the resource base (stock of natural capital) is degraded over time, and therefore the resource rents decline, then this effect is relevant from a perspective of sustainability which is defined in terms of capital values. Thus, the concept of total economic value of agriculture might be important for evaluating agriculture's contributions to society in a framework of sustainable development.

The most recent academic publications dealing with the multifunctionality of agriculture is regarded as a supply-centred concept where technical progress and jointness in production play an important role. Moreover, it is regarded from a perspective of perception and valuation by stakeholder groups. The special position agriculture and forestry is emphasised with respect to their use of land in a way that the landscape can keep its semi-natural character and resources can be (sustainably) used in the long run. This is directly related to social demands on resource quality and environmental services. These exhibit the character of non-depletable externalities which must be internalised for social welfare maximisation and elimination of market failure. In this context, a fundamental asymmetry exists between

effluent charges and subsidies to farmers for reducing rural water pollution. Correspondingly, recent analyses show that subsidies for pollution abatement might induce welfare losses and trade distortions. This is just one case which elucidates that the extension from partial analysis to policy design in a context of multifunctionality is not straightforward. In addition, recent works show that the existence of non-marketable “products” is relevant for the discussion of multifunctionality. On the supply side, this may confine options of land use and the resulting landscape. On the demand side, it involves the degree of tangibility, individual tastes and preferences, and the willingness-to-pay of different stakeholders. Altogether, this leads to trade-offs between competitiveness and location rents, and the demand for compensation payments. Apparently, these linkages must be further investigated, which calls for jointly addressing issues of efficiency, equity and effectiveness.

5. Multifunctionality and sustainability

As in other countries, the relationship between multifunctionality and sustainability has not been investigated yet through academic works, although the links are obviously pointed out in political arenas. Only recently, we have initiated research on the epistemological and conceptual basis to improve our understanding about the linkage between the two fundamental concepts. However, there remains substantial research to be undertaken.⁶

6. Conclusion

In Switzerland, few academic works directly refer to the concept of multifunctionality, although it is a guiding policy principle.

Existing literature reviews reveal a lack of studies that have comprehensively addressed the nature and degree of jointness in a way that would have completely reflected the multifunctionality of agriculture. This lack of research covers both theoretical and empirical investigations. Moreover, the present review indicates that various aspects of multifunctionality must be taken into consideration in a comprehensive analysis. These include all stakeholders on the supply and demand side, and require simultaneous consideration of technical progress, property rights, jointness in production and economies of scope, as well as tastes, preferences and willingness-to-pay of different stakeholder groups. In addition, environmental economic analyses reveal a fundamental asymmetry between effluent charges and subsidies to farmers for reducing rural water pollution. This indicates the need for further research in the domain of environmental policy design when multiple functions of agriculture (external costs and benefits) are included. Finally, there is a need to clarify the relationships between the multifunctionality and sustainability of agriculture and rural areas. This requires an integrated approach of sustainable rural development rather than a patchwork of traditional approaches dealing with partial aspects of multifunctional agriculture and sustainable development.

⁶ In this context, one must remind that both concepts of multifunctionality and sustainability have origins in principles of forest resource and ecosystem management.

Table 6. Classification of main epistemic communities in Switzerland working explicitly on MFA or on related concepts

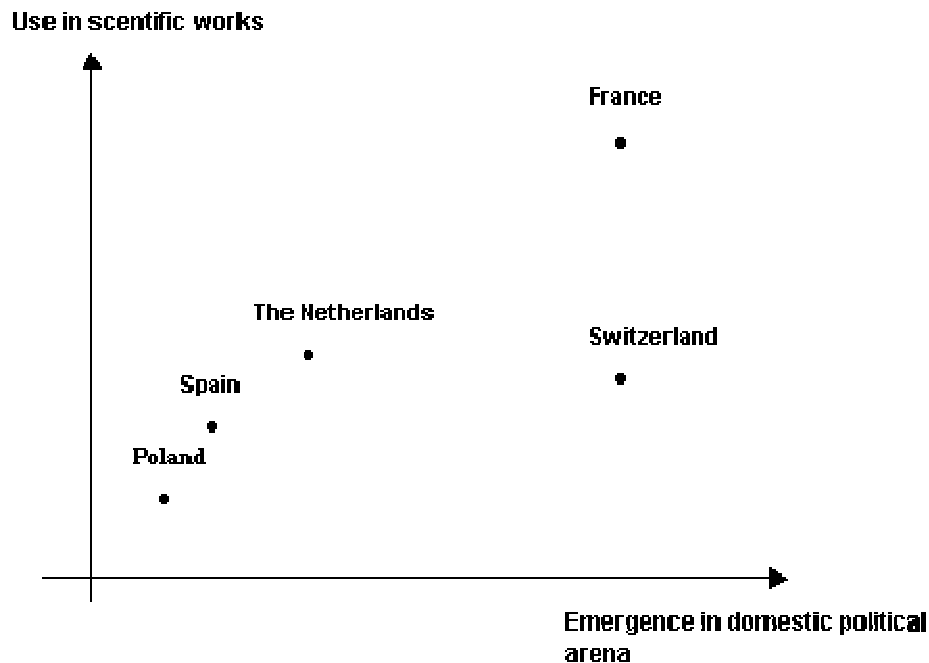
Epistemic communities	Main conceptual aspects surveyed	Disciplines / theoretical fields	Leading research questions	Use in policy making	List of related functions	Weaknesses or limitations	Other words or concepts used instead	Related concepts
1. EXPLICITLY WORKING ON MFA CONCEPTS:								
MFA as a political concept	Economic characteristics of functions and levels of tangibility in society	Agricultural policy makers	- <u>By policy makers:</u> justification of policy reforms and government support	Origin of the debate, and used in Swiss agricultural policy without the rigour of economic analyses	Comprehensive definition that addresses environmental and socio-economic functions of agriculture	Introduced in GATT / WTO negotiations and established in the federal constitution without sound economic analyses; efficiency and effectiveness not in general considered	Non-trade concerns, roles of agriculture, agriculture's contributions to society	Other concepts of MFA listed below, SARD
		Agricultural economics, regional economics	- <u>By economists:</u> efficient and targeted policy measures; literature reviews					
MFA as an empirical concept	Jointness in production, market failure, institutional options for providing non-commodity outputs	Agricultural economics, regional economics, political economics	Literature review (OECD mandated) and empirical analyses	Justification of past policy reforms	Mainly environmental functions, to a lower extent socio-economic functions	Partial analyses are not adequate for effectively assessing the total value of agriculture	Joint production, externalities, public goods	Total value of agriculture
MFA as a welfare economic concept	Social welfare, externalities, general equilibrium and trade, sustainable development	(neoclassical) economics, ecological economics	Optimal policy design; welfare economic foundations of the concept	<i>Potential for the design of socially optimal and efficient policies</i>	Dominated by partial analyses; need for comprehensive approaches (see above)	Must include all relevant aspects and functions; different epistemological foundations (libertarian, utilitarian, etc.)	Non-trade concerns; market failure; externalities; SARD	Other concepts of MFA, TVA, SARD
MFA from the perspective of stakeholder groups	MF as a supply-centred (marketing) concept	Agricultural economics, sociology, ethnology	Individual perception of MFA, justification of government support to farmers, creation of markets	<i>Potential for the design of socially optimal policies</i>	Depends on the perception by different stakeholder groups	Partial analyses with a focus on national/local agriculture with a perception bias, production oriented	Societal demand for marketed and non-marketed goods and services	MFA as an empirical concept
2. RELATED CONCEPTS:								
Total value of agriculture (TVA)	Comprehensive evaluation of economic, social and environmental functions of agriculture	Environmental valuation (economics, ecological economics)	Assessment of external costs and benefits of agriculture (mandated by the Swiss Federal Office of Agriculture)	Justification of past policy reforms	Economic functions (markets), ecological and social functions (benefits and negative effects)	Focus on demand side, risk of double counting and over-estimation by adding up single functions	Externalities, spill-over effects, externalities, value of total capital	Total economic value, sustainable development
SARD, SARD-M	Sustainable development	Mainly politics	Implementation of Agenda 21	In less favoured areas	Not explicit	Still a political conception/ideal	Rural development	MFA

Conclusion and recommendations

1. With regard to academic in European countries, it must first be noted that societal demands and concerns about other functions of agriculture than food and fibre production are predominantly addressed through other concepts than multifunctionality, with the exception of France. The large French contribution to the literature on multifunctionality can be related to the traditional importance of rural economic and sociologic disciplines within the country, and to the emphasis of the French government for the concept as a basis for thinking about new justifications to farm support as well as for favouring holdings that respond to environmental and social concerns, which led to the implementation of the CTEs. In contrast, in Switzerland, the concept of multifunctionality evolved primarily as a political construct that has only be based on partial analyses, rather than comprehensive studies that would have integrated the multiple functions of agriculture and contributed to the development of a scientific concept of multifunctionality. Moreover, the fact that the concept of multifunctionality is, together with the one of sustainability, a guiding principle of the current national agricultural policy, as well as the fact that Swiss is one of the “friends of multifunctionality” in the WTO negotiations has not led to a substantial national scientific production on this issue. The limited contribution of Spain to the conceptual aspects of multifunctionality seems to be linked to the predominance of a monofunctional approach, both from the administration and the professional unions, based on the ample possibilities for the development of the productive potential of Spanish agriculture that still existed in the last few decades. In the Netherlands, it seems to be linked to the fact that the traditional objectives concerning the agricultural sector were modernization and improvement of competitiveness. In Poland, if the use of the concept has been extended during the nineties, notably as a result of the adhesion process, the actual issue appears to be rather dealing with the employment problem set by the ongoing modernization process than to preserve or to enhance non-production function (see fig. 3). However, one can identify in all countries, with the exception of France, a growing academic and political interest for the concept, which translates a need for a renewed political agenda towards rural and agricultural development.

2. The scientific disciplines mobilized are mainly of social sciences, with works in sociology, geography, law, political sciences and above all economic sciences. Within this last discipline, the researchers belong to diverse streams and schools of thought (welfare economics, institutional economics, neo-institutional economics, environmental economics, economics of production and trade, etc.). The contribution of other relevant scientific disciplines (natural sciences, applied sciences as rural planning, landscape architecture etc.) is important in order to reach a sound understanding of relationship between farm outputs and other features or functions like biodiversity, rural cultural heritage, environmental protection etc. But most of the research in these areas has not been specifically designed to provide answers to the type of questions required to make “multifunctionality of agriculture” a fully operational concept. However, some researchers within these disciplines, such as agronomy, have started to adopt the word, sometimes defined it according to their disciplines, and launched new works.

Figure 3. Extent of the emergence of the multifunctionality concept in political and scientific arenas



3. Eight CORCs can be identified from a comparative analysis of the case studies :

Definition of Concept Orientated Research Clusters

To present, compare, analyse and classify the different definitions and concepts used in political and theoretical discussions, the WP1 empirically chose to define Concept Orientated Research Clusters (CORCs). Each CORC is characterized by a relative homogeneity in the research practices, in the research questions addressed, and in the concepts used or discussed by scientists to lead their work, and by the scientific disciplines, the stream of thought or possibly the epistemic community researchers belong to. The definition of multifunctionality in each cluster can be explicit or not, but the scientific concepts used to qualify it rest on shared ideas. The intention was not to list existing definitions of multifunctionality, nor to classify countries according to the use of the word, but rather to look for a characterization of research practices that might help structuring the research perspectives on multifunctionality.

CORCs identified

Eight CORCs were identified from a comparative analysis of the five national case studies, which has been later completed by comments from the other Multagri Work Packages and validated during an international experts' workshop. The results of this analyse are synthesized in a table at the end of the document.

➤ **A joint production of commodities and public goods**

This first CORC is built upon analyses of multifunctionality by neoclassical economists around 2000 in relation with the international debates on trade and domestic support to farmers. The authors in this CORC have adopted a shared and explicit definition of multifunctionality based on the jointness between commodity outputs and public goods or the presence of externalities. They often refer to the concept of non-trade concerns as a synonymous of multifunctionality. This conception of multifunctionality is consistent with the 'positive' definition laid down and used by the OECD (2000). This cluster is fairly international, including American works, and uses a limited number of shared hypotheses and concepts arising from neoclassical economics (environmental economics, economics of production and trade, or other sub-areas of welfare economics, neo-institutional economics, etc.). The literature covered here mainly focuses on the efficiency of public policies or institutional arrangements in order to promote joint public goods and positive externalities and on their legitimacy in relation with the international negotiations. In that sense, this CORC often involves a normative dimension too, even if the definition of multifunctionality itself is essentially positive. Analytical firmness is the main strength of this CORC, and the lack of empirical evidence of jointness is its main weakness. In addition, analytical results are applicable in countries with a market economy and significant farm policies, which is not the case in most developing countries.

➤ **Multiple impacts and contributions from agriculture to rural areas**

CORC 2 gathers interdisciplinary works focusing on the impact analysis of agriculture in a particular area. This cluster's originality is not the conceptual qualification of multifunctionality. It rather attempts to build an empirical and comprehensive focus of the state of agriculture in an area and its contribution to changes. This CORC deals with the contributions of agriculture at the holding level or at the territory level, with its impact on a community, a territory or a society as a whole. Findings on those aspects of multifunctionality are brought by economists, sociologists and agronomists adopting research questions such as the assessment of the impact itself (on employment, landscape, income, etc.), or how to promote farming diversification in agricultural and non-agricultural activities (important issue in eastern European countries for instance). The empirical relevancy of this CORC is its main strength for decision making whereas the lack of conceptual unity and robustness is its main weakness for research purposes.

➤ **A complementary and conflicting connection between commodities and identity goods**

CORC 3 mainly includes economists working on an alternative view of multifunctionality in reaction to the common definition. They do not share the dominant opinion that non trade concerns in the field of agricultural multifunctionality should be analysed as resulting of market failures, which would find its solution either by creating new markets or by way of public good production. Researchers in CORC 3 consider that the development of market exchange unavoidably involves the destruction of identity and reciprocity structures. The non market exchange dimension of agricultural production is precisely assigned to restore identities and reciprocity relationships (concerning community and resource management, culture territory, intergenerational link...). This CORC develops another economic rationality (based on identity or reciprocity economy) which sets the limit to the rationality of the market exchange economy.. Empirical works of this analytical stream are conducted in several parts of the world (EU –national implementations of Rural Development Regulation-, North and

South America, Africa) and show the way these two complementary and conflicting dimensions of agricultural multifunctionality and sustainable development are implemented or co-existing: on the one hand market exchange organisations and market price systems, on the other hand identity and reciprocity organisations (mainly renewal or new establishment of communities) and framing of non market price systems. Each of these two economic ways tends to overflow the other, resulting in movements and changes. Researchers draw the concrete lesson that there always will remain two different (market and non market) organisation and price systems, and that political task consists in managing and controlling conflicts between them and not to hopelessly keep trying to reduce one dimension to the other. The main strength of this CORC is its ability to account for economical values in farm production that CORC 1 does not account for (cultural dimension in particular). Its main weakness probably lies in its lack of anchorage into the “standard” economic literature and of visibility in the normative side of multifunctionality debates.

➤ **Farmers strategies and practices: multifunctionality, technical change, livelihood systems**

CORC 4 includes agronomists and economists who work at the farm scale and perceive multifunctionality as a motor that drives agricultural practices. Research activities recognize two major and different focuses: the design or the promotion of “good practices” according to ecological norms on the one hand, and the understanding of practices and farmer’s individual choices by taking into account multifunctionality on the other hand. This CORC and more particularly the second focus actually bring a new dimension into the analysis of farming choices and decision making processes as research objects. For economists, the interest refers to the way non market objectives can be reached through private actors used to react to private signals. Therefore, multifunctionality requires new methods to assess and improve the procedure for farmers decision making, taking into account a wide range of functions and trade-offs. There are two basic research questions in this CORC : (i) what is the interpretation of multifunctionality in terms of farmers decisions and behaviours ? (ii) to what extent has the recognition of multifunctionality (in public policies or in local institutions) led to a change in farmers’ practices and strategies? The main stake here is not to qualify a list of functions of agriculture, but to consider the new functions as factors of change (“environmental protection”, “landscape management”, family welfare, etc.) trying to further see how producers’ technical choices are moving in this direction. This CORC’s main strength is its potential effectiveness in understanding and promoting principles of multifunctionality at the farm level. Its main weakness is the lack of a common analytical dimension toward these principles.

➤ **Multiple use of rural space and regional planning**

CORC 5 gathers authors who work on multifunctionality as a policy guide to integrate new objectives in farm policies in complement to the main drive towards agricultural modernisation and productivity. The normative dimension in this CORC is relatively significant, the aim being explicitly to providing a scientific basis for objectives such as redirecting funds to less-favoured areas, reinforcing the diversification of economic activity, promoting alternative values of agriculture like the landscape protection, etc. As in CORC 2, and for the same reasons (empirical relevancy) the conceptual roots of multifunctionality is not at stake, research methods can be rather heterogeneous, and research teams are pluri-disciplinary. CORC 5 includes scientists and experts from urban and rural planning, landscape architecture and social geography, integrates multiple functions of agriculture but also multiple uses of the territory. A typical research question in CORC 5 is : what is the best way to organize spatial planning by taking into account the impact that agriculture may have on the attractiveness and sustainability of rural and urban living areas ? CORC 5 is

particularly well represented in the Netherlands, where competition between land users is high, but also in Spain. Its main strength is its direct orientation toward an evolution of policy making. Its weakness, as far as research is being concerned, is a lack of conceptual robustness of the definition of multifunctionality.

➤ **Adjustment between activity systems and societal demands as a way toward sustainable agriculture and rural development (SARD) regulation**

CORC 6 involves authors who seize the emergence of multifunctionality as an opportunity to build a holistic view of agriculture as a way toward sustainable agriculture and rural development, and therefore as a way to re-embed agriculture within society. The arising of multifunctionality in the debate on sustainable development helps to point out what are the specific contributions of agriculture to rural development, including analyses of its role in food supply chains (notably in the Netherlands), of the compatibility between sustainable development with farm competitiveness (notably in Poland), of its importance for the maintenance of rural population in less favored areas (notably in Spain and Switzerland), etc. Scientists belong to very diverse disciplines, but share the common concern of sustainability that goes beyond the analysis of functions and their relationships. The strength of this CORC is its comprehensive ambition making it possible to analyse agriculture globally in the long run. Its main weakness is a lack of analytical firmness in the characterization of agriculture.

➤ **A social demand towards agriculture**

CORC 7 includes researchers focusing explicitly on the demand side for multifunctionality. The demand side is largely present in each CORC, but generally as a given matter of fact. For researchers in this CORC, multifunctionality is primarily defined by the multiple expectations or requirements of the society toward agriculture. Fundamentally these expectations are the very justification for agriculture to be oriented in a multifunctional way. These authors develop methods to identify and quantify (in terms of the tax payer willingness to pay for example) these social demands and eventually, the ways agriculture might be able to meet them. The methodological stake in this CORC is very high given the lack of reliable and objective information which is available, and given the high controversies on existing methods. The main strength of this CORC is the value of the pursued information for policy makers. For economists, its main weakness is the contradiction between the wide range of information required to evaluate the full non market value of agriculture and the level of precision required for these empirical econometric studies.

➤ **Governance, policy and multifunctionality**

CORC 8 includes researchers referring to the functions of agriculture explicitly and objectively recognized in legal or official texts underpinning agricultural policies. Researchers here study the existence of multifunctionality in such texts, and the consistency of new official objectives (regarding the promotion of multifunctionality) with the policy measures or the institutional arrangements implemented (in particular in France the CTE, *contrat territorial d'exploitation*, or territorial farming contract), using expertise most of the time. Other research question are for example : to what extent does multifunctionality modify the principles and modalities of previous farm policies ? To what extent does it constitute a new paradigm or a new guide for agricultural policies (socio-economists , researchers in political sciences, jurists)? The main strength of this CORC is its ability to help judging if political claims are actually converted into real policy reforms and farming practices and to help providing an impact assessment of such policies, and its main weakness is a lack of analysis of the economic rationale of the policy measures.

4. The conceptions of multifunctionality and the actual concept or expression used in works vary within countries, between countries, among scientific communities, and depend as well of the structure and respective importance of scientific communities and disciplines at national level. These differences are related to :

- What is designed as multifunctional : agriculture, holdings, rural areas or forests. In some countries such as France, the debate is mainly focused on multifunctionality of agriculture, but in others the debate is related to the multiple functions of rural areas. For instance in the case of Poland, one important question is how those areas can contribute to absorb flows of workers coming out from agriculture.

- The expression used : multifunctionality (or multiple functions), non-commodities output (coming from the OECD analytical framework), identities goods, multiples roles. Moreover, the national debate can be focused on more or less closely related concepts like “integrated agriculture”, “sustainable agriculture”, “reasoned agriculture” (in France), etc.

- The functions identified by researchers or experts (positive works). They differ among countries and within countries among territories, and depend as well on the scientific stream the researcher belongs to. The concerns of some countries and regions are for example more related to water management (Netherlands, Spain, Brittany, Bassin Parisien), soil erosion (Spain, south of France), land abandonment (Spain, France), rural development (Poland, Spain, France).

- The functions to be promoted (normative works) : the recommendations on what should be the functions of agriculture or rural areas and the way to enhance them can widely differ, depending on the conception, concept and theoretical framework used. The Netherlands report highlights for example the co-existence of two paradigms on agricultural development. On the one hand, the “rural development paradigm” suggests that the integration of traditional and new rural functions at a farm-level is relevant for rural development and society at large and offers a good economic opportunity for farms. On the other hand, the (neo-) modernization paradigm recommends on the contrary a mono-functional development of the sector to safeguard its competitiveness.

5. The connection between the concepts of multifunctionality and sustainability is almost never explicitly done in reviewed scientific works. Nevertheless, part of these works implicitly refers to the consistency or the contribution of agriculture with an objective of promoting a sustainable development. For instance, studies of agriculture’s contribution to global functions, such as income, employment and natural resources, can be related to the three dimensions of sustainability (ecologic, economic and social). However, there is a lack of both theoretical and empirical work which would elucidate the relationship between these two concepts that are frequently used as synonyms on political platforms.

6. Nevertheless, differences in perceptions on the interrelations between those two concepts can be noted. The national reports show some clear differences. In particular in Switzerland, where MFA is regarded by policy makers as a prerequisite for sustainable agriculture. In contrast, in the Netherlands the opinion dominates that MFA is one specific example of the different farm development trajectories towards sustainable agriculture. The French national reports, on its turn, illustrates that their might be in other member states relatively little attention for the interrelations between both concepts.

7. Some strengths of the concept :

- The “normative conception” (according to the OECD terminology) of the concept (the role of agriculture to be promoted) can help to the formalization of actual social concerns towards agriculture at national and local levels. It can provide a basis for thinking about issues and problems that the various agricultures and rural areas face, and can serve as an input for the definition of development strategies.

- The positive conception (public goods jointly produced) refers to an analytical framework and empirical studies used and recognized in the international political debate. Thus, it can help to renew or to improve the literature on the economic justifications of public policies in the field of agriculture and rural development, on the relative efficiency of the various measures, and on the various impacts of the trade liberalization process, among others.

- But the multifunctionality concept also allows for the recognition of a broad range of actual and potential contributions from agriculture to sustainable rural development, which includes by definition positive (what are these contributions?) as well as normative (do we have to preserve or to promote them and how?) dimensions.

- Further, multifunctionality can also be seen as a unifying concept expressing the diversity in national societal demands and concerns with regard to agricultural and rural development. The concept allows for the recognition of a broad range of actual or potential contributions from agriculture to sustainable rural development, which includes by definition positive as well as normative dimensions.

8. Some weaknesses of the concept :

- The concept of multifunctionality is not of the same concern everywhere. In some countries like in Spain or in Poland, it seems that it is actually not explicitly taken into consideration neither by the administration, the farmer unions nor the scientists. Nevertheless, as we already noticed, all national contributors signalled a growing interest for the concept within their country.

- The credibility of the concept still suffers from the fact that it has been used by some groups for the defense of their own interest. It has been the case first in the WTO negotiations by the “friends of multifunctionality” group, but also later by some farmer union, to support the current CAP. However, this weakness is not relevant nowadays. Indeed, the intensity of the debate on multifunctionality of agriculture within the WTO trade negotiations has fallen. This debate seems now to be more located at national and regional levels, and focuses more on the issue of rural and agricultural development models, than on the impact of the trade liberalization process.

- According to the conception and the theoretical approach adopted, the list of functions obtained and the policy recommendations can vary widely.

- There is a scarce empirical evidence on the so-called “joint output relationships” between the marketable private output of agriculture and an assorted variety of public goods of societal concerns. In many cases, environmental functions, landscape, biodiversity,- it seems that the existing evidence is purely local, and subjected to many qualifications, related to the type of technology employed, the intensity of land use etc. This means that it is very difficult to build a general case in favour of a positively linear relationship between aggregate farm output and a “composite public good” representative of highly valued non-commercial functions of agriculture, as some political discourses of the “friends of multifunctionality” take frequently for granted.

9. General needs for further works (apart from specific national needs that can be found in summaries of national reports) :

- In all countries, there is a notable lack of scientific attention for the specific interrelations between the concepts of multifunctionality and sustainability as two central guiding principles for agricultural and rural development and policies.

- More empirical research is obviously needed to characterize multifunctionality, including divergent perceptions and valuations by different stakeholder groups, appraising for

instance the contributions of agriculture to rural development, the economies of scope, the social costs and benefits of agriculture, etc.

Annex : Classification of the main CORCs explicitly working on MFA or on related concepts

Corc	Disciplines	Research questions and controversies	Waves & use in policy making	List of related functions	Weaknesses or limits	Other words or concepts used instead	Related concepts
Multifunctionality as a joint production of commodities and public goods	Neoclassical economics	<ul style="list-style-type: none"> o Jointness between agricultural production and other goods o Efficiency of public policies, private arrangements, international agreement to deal with public goods and externalities o Legitimacy of non-trade policy targets according to their impacts on international trade. 	<p>Coming from international debate (WTO, OECD)</p> <p>Main theoretical background used in the international debate and negotiations, then used at the national policy level</p>	<p>Environmental externalities and public goods</p> <p>Functions requiring public intervention in the light of welfare economics</p>	<p>Restrictive view of multifunctionality (mainly : contributions to environment)</p> <p>Primarily driven by theoretical concerns</p> <p>Relatively little attention to assess function integration and function combinations (?)</p> <p>Partial analyses not adequate for effectively assessing the total value of agriculture</p>	<p>Externalities</p> <p>Public goods</p> <p>Joint production</p> <p>Non-marketable goods</p> <p>Other goods</p>	<p>Market failures</p> <p>Distortion</p> <p>Decoupling</p>
Multiple impacts and contributions of agriculture/rural areas to society, local communities and environment	<p>Economists</p> <p>Agronomists</p> <p>Geographers</p> <p>Natural scientists</p>	<ul style="list-style-type: none"> o assessment of impacts / contributions (to employment, erosion prevention, water quality, economic development, etc) o how to promote (or to deal with) those impacts / contributions <p>Competing uses of water (i.e. irrigation <i>versus</i> ecological uses</p>	<p>Coming from farm sector structural changes and changes in societal concerns</p> <p>Highlight the contributions of agriculture and the effects of policy measures for environment, employment, etc</p> <p>Design of efficient pricing systems for irrigation, and saving valuable water resources.</p>	<p>Wide-ranging lists of functions, collating all identifiable contributions or positive impacts</p>	<p>Works within this CORC often do not take into account the whole impacts of farming activities (negative impacts) and polic</p> <p>Inconclusive empirical evidence concerning the relative merits of farming to fulfil these contributions / functions</p>	<p>Externalities (positive / negatives)</p> <p>Public goods</p> <p>Multiple effects</p>	
Multifunctionality as a necessary connection between commodities and identity goods	Institutional economics	<ul style="list-style-type: none"> o impacts of the liberalisation on identity o Conditions for producing and trading such goods o Determinants of public-policy reform 	<p>Coming from "non standard" economists in reaction to standard economics postulates and conclusions</p>	Set of identity goods	Restrictive view of policy change's determinants		Market and non-market outputs
Farmers strategies and practices: MF, technical change, livelihood systems,	<p>Agronomics</p> <p>Rural Economics</p>	to what extent the recognition of MFA has led / should lead to changes in farmers' practices	<p>Coming both from politicians and farmers in a view of improving practices as a response to new social concerns</p> <p>Useful for the understanding of impacts of policies on environment, employment ...</p>	Set of "good practices"			Technical choices, livelihood systems

Corc	Disciplines	Research questions and controversies	Waves & use in policy making	List of related functions	Weaknesses or limits	Other words or concepts used instead	Related concepts
Multiple use of rural space & regional planning	Urban and rural planning Landscape architecture Social geography	<ul style="list-style-type: none"> Extent of the contribution of function integration to maintain attractive/sustainable rural and urban living areas, How to organize spatial planning in line with changing societal demands. 	Input for national debate on the pro's and con's of function integration as a way to deal with the scarcity of national land and spatial resources	Broadly defined, with a specific attention for nature, landscape, leisure, water management, expansion of living areas, infrastructure, etc.	Little specific attention for the multifunctionality of agriculture, focus on the potential of function integration at local and regional levels instead of enterprise-levels		multiple use of space; green and blue rural services; public-private partnerships
Multifunctionality as a way towards sustainable agriculture and rural development	Socio-economics Political science Agri-economics Agronomy Rural sociology Geography Economics (institutional economy, regional economy)	<ul style="list-style-type: none"> Renewal of countryside Protection and enhancement of cultural heritage how to support and activate rural population? how to provide alternative source of income for rural population? To what extent can these functions contribute to SARD? Implementation of agenda 21 	<p>Coming from government, to deal with structural adjustment consequences (Poland)</p> <p>Socio-economic impact of MFA, its potential to contribute to SARD, the construction of innovative policy designs, etc.</p>	<p>Regional policy Agri-tourism, environmental Socio – technical infrastructure Social, environmental, agricultural and ecological functions landscape/nature service functions of rural areas' related to recreational and settlement activities</p> <p>Broadly defined, with a specific attention for functions that represent (potential) public and/or private markets.</p>	<p>Relates only to the people working in the agricultural sector</p> <p>Lack of adequate data material due to the dominance of sectoral approaches in statistical institutes, growing problems around the delineation of agricultural activities</p>	<p>Multidimensional Regional development Development of infrastructure Development of rural population</p> <p>Integrated agriculture, the of broadening agriculture, conservation agriculture</p>	<p>Local and regional development Urban and rural development Social requirements</p> <p>Deeening, broadening and regrouping of agriculture, livelihood-strategies; asset specificity; new institutional arrangements;</p>
MF as a social demand towards agriculture	Expertise Management Geographic economics	<ul style="list-style-type: none"> Identification of social demands How agriculture can address them 	Coming from government and scientists Useful for the understanding of the supply side of Mfa	Expectations from various social groups towards agriculture			Social requirements or expectations Sustainability
Roles of agriculture to be officially addressed by policy (coordination of supply and demand)	Economic and agronomic expertise Political science and economics Epistemology	<ul style="list-style-type: none"> Consistency of the Mfa official objective with policy measures (CTE, CAP measures) or other objectives Mfa as a new paradigm Implication for the renewal of holding economic models 	Coming from scientists Useful for the understanding of the efficiency of a policy regarding its objectives	Set of functions of agriculture explicitly mentioned in public policies	Doubts from scientists on the scope of the will of public administration at the national and UE level to really promote non – production function of agriculture		Multiple contributions

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