



Part 1:
Sustainable production and consumption patterns

SUMMARY



**PRECONDITIONS FOR SUSTAINABLE LAND USE BY AGRICULTURE IN
URBANISING NETWORK SOCIETY**

CP/47

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Introduction

This two-year research project – financed by Belgian Science Policy as part of the Scientific Support Plan for a Sustainable Development Policy II, part I-Sustainable production and consumption patterns – was managed by a research network, consisting of the Department of Mobility and Physical Planning of the Ghent University (co-ordination), the Research Group Urbanism and Architecture of the Katholieke Universiteit Leuven, the Department of Agricultural Economics of the Ghent University, the Institute for Social and Economic Geography of the Katholieke Universiteit Leuven and Resource Analysis.

Starting point of the research is that, if agriculture wants to have a *raison-d'être* within an urbanising society, it can and may no longer be considered merely as an economic, food producing activity. As a consequence, the research does not start off from a physical planning that honours the claim for land of agriculture on the basis of only economic prognoses. On the one hand, the societal quality demands will be determining for the spatial development possibilities of agriculture in certain regions. On the other hand, the specific spatial context of mixed urbanity and rurality will form the basis on which policy and development will have to be grafted.

There seems to be some kind of consensus on the two main trends in the transformation of agriculture in North-Western Europe: one trend refers to increasing modernisation, intensification, specialisation and scale enlargement of an agriculture that is competitive on the world market; the other trend is one of broadening or diversification of farms with other, socially relevant activities that can result in an income surplus for the farmers. In other words, there seems to be a dualism afoot between the global character of food production, characterised by quantity, on the one hand, and new quality demands that stress the local character on the other hand. In an urbanising context, especially a multifunctional agriculture within the local broadening perspective seems to have the potential to become the most important argument to legitimise future land claims by agriculture.

Because of suburbanisation, the countryside is no longer an univocally identifiable spatial unity: it is and urbanity and rurality, and consumption and production. Pure forms of city and countryside still exist, but the majority is an overlap of a peripheral type of urbanity and a peripheral type of rurality. The land claims of other functions and activities are an important threat of the agricultural sector. Ground prices seriously increase. There is a decrease in available agricultural land which is increasingly fragmented. Furthermore, the growing individualistic approach of the countryside results in a mutual misunderstanding between new inhabitants of the countryside and farmers.

Methodology of the research project

Because of the uncertainties on the future societal development, the use of scenarios seems an appropriate research methodology. Because of the focus of the research on the spatial consequences for agriculture, it is important to develop scenarios with a spatial approach. These are developed on a meso and micro level.

- On the meso level the consequences of three alternative planning discourses on the altered relationship between city and countryside are studied. A planning discourse has to

be considered as a more or less consistent ensemble of ideas about (aspects of) the spatial development of city and countryside. The three discourses are an alternative for the existing dominant discourse of city and countryside as antipodes and screen the relation between city and countryside stressing respectively functional relationships, ecosystem characteristics and meanings.

- On the micro level the preconditions for sustainable land use by agriculture are investigated within an integrated landscape vision. This vision imagines a desired spatial scenario: a landscape of consonance in which agriculture produces a qualitative space together with the other users, a space that accommodates and stimulates a sustainable use of space. Thus the emphasis is on the actors and their dynamic. The elements and patterns that they (re)produce, and the logics behind these spatial transformations, are analysed.

Both approaches led surprisingly to similar conclusions concerning the use of a medium scale (between parcel and landscape, between parcel and region) and the political translation in the physical planning instruments.

The methodology of scenarios was fed by research by design in two regions: Kortrijk-Roeselare and the South-Western fringe of Brussels (Pajottenland). Both regions are traditional agricultural areas that, today, experience a strong urbanisation pressure.

On a meso level three case study areas in the region Kortrijk-Roeselare each specific planning discourse was implemented in the most appropriate area. In the region Pajottenland the three planning discourses were implemented and combined in the same case study area. On the micro level a design approach to imagine the landscape of consonance was developed through its application on two of the three case study areas in Kortrijk-Roeselare and on a study area in Pajottenland. In all case study areas, by way of sections of 6 to 3 kilometres, the spatial patterns are detected, logics of reproduction analysed and future visions developed. The research by design on the meso and micro level was constantly confronted with reality. Three tracks were developed.

- Through a social-geographical analysis of diversity and stability of the entire Flemish countryside, the developments in the case study areas were positioned in a correct way. The societal expectations concerning agriculture and countryside were estimated through a large-scale inquiry in the region Kortrijk-Roeselare, complementary to the inquiry in the Brussels region in former research.
- The agricultural economic situation of the four study areas are defined as context. Furthermore, the possibilities of agriculture to enlarge the economic viability of the individual farm within the three planning discourses are investigated.
- During two workshops, actors from the case study areas were obliged to analyse the areas through a certain planning discourse and to formulate a vision. In this way, the feeling with the reality was maintained and the research by design was fed with concrete information.

Societal expectations patterns in relation to agriculture and the countryside

Agriculture, who wants to play an important part of the network society, has to be an agriculture that creates the quality the network society asks for. This contribution will investigate this quality demand of society more closely.

An extensive survey is executed to becoming a good overview of the expectations and attitudes of consumers in relation to the countryside. Different themes, who are inspired by the survey executed in the Brussels urban region (project CP/18: 'Development strategies for a multifunctional agriculture in peri-urban areas'), are threaded. This research already demonstrated that the distance to a city and sociological characteristics do not serve to estimate the attitudes, expectations and behaviours of citizens. Besides concentric differences in attitudes, there are also important regional and sub-regional differences. The execution of an additional survey in a spatial multifaceted area will increase the understandings in the expectations of society towards agriculture. Five different sub-areas are distinguished in the 'urban network of Kortrijk-Roeselare'. On the one hand citizens of both city centres are inquired. On the other hand, the surrounding countryside is divided in three entities: Roeselare-West, Kortrijk-Waregem and the Interfluvium. These areas know an entirely different structure of production and spatial organisation.

This research explains that the inhabitants of the urban network of Kortrijk-Roeselare come frequently in contact with agriculture. A remarkable high proportion of respondents (60 %) buy now and then farm products on a farm (contrary to 30% in the Brussels urban region). This can be explained by the high supply of farms in the region, combined with an important tradition. Nevertheless, this form of multifunctionality has not much possibility to grow, given that the respondents who do not buy products on a farm are not interested, consume vegetables from their own vegetable garden or have little time. Conversely, the inhabitants of the Brussels urban region have to a large extent a lack of information. The difference between both study areas manifests itself in the participation to other forms of consumption, such as farm markets or food teams. These forms of diversification are little known and not widespread in the urban network Kortrijk-Roeselare (contrary to the Brussels study area). They mainly came into being as an answer on the demand of a specific type of peri-urban inhabitants, a consumer type that is absent to a large extent in the urban network Kortrijk-Roeselare. The food quality requirements that have increased due to different food scandals, is highly valued in both research areas.

The countryside (as a living and recreation environment) is well appreciated in the study area of Kortrijk-roeselare. Nevertheless, a difference in appreciation and perspectives with regard to the countryside is noticed according to the different spatial organisation logics. The Interfluvium is more appreciated by inhabitants and recreants than Roeselare-West, an area where the production of pigs, the production of vegetables and the mixed up establishment of processing companies and heavy traffic are a blot on the landscape.

Although almost all respondents (94 %) have the opinion that agriculture in the urban network Kortrijk-Roeselare has to continue, 1/3 of the respondents find it necessary that a part of the farming land may be replaced by woodlands, nature or parks. We notice concentric differences in the reasons behind this. City dwellers mention the lack of a green space and the ecological surplus as important reasons, while country dwellers have a more individualistic approach of the countryside. These inhabitants are looking for a peaceful and agreeably surrounding, but they

forget from time to time the turbulent character of agriculture. These country dwellers have the opinion that an increase of woodlands, nature or parks, would produce a more pleasant living surrounding. This opinion is stimulated by the fear of constructing houses on vacant land.

On the basis of different 'attitude-questions', the respondents are divided in three 'groups of attitudes', each with an entirely different profile. The enthusiastic supporters are extremely favourably to the continued existence of agriculture (this may occur if necessary with the support of governance funds). They also agree with that fact that agriculture has a positive influence on the living environment and on the landscape. In spite of this, they find it (in comparison with the other attitude-groups) not so pertinent that farmers fulfil certain obligations (such as taking care for the landscape). The discreet opposites of agriculture have an almost reverse attitude-profile. They have a negative attitude with regard to the continued existence of agriculture, they believe that agriculture has a negative influence on the living surrounding and on the landscape and they also have the opinion that agriculture may not receive governance funds. Furthermore, these respondents find that agriculture causes disadvantages. The third attitude-group, the altruistic proponents, has the same positive attitude towards agriculture and towards the influence of agriculture on the living surrounding and on the landscape as the enthusiastic supporters, yet to a lesser degree. The difference between these two attitude-groups manifests itself in the fact that altruistic proponents do not experience advantages relating to agriculture.

From a policy and geographical point of view, it is important to verify whether there is a spatial differentiation in the attitudes relating to agriculture. Although each attitude-group is represented in each sub-area, an important spatial differentiation can be remarked. In the first place, we notice a difference between the respondents of the city centres of Kortrijk and Roeselare and the respondents of the surrounding countryside. City dwellers are rather part of the group altruistic proponent. This can be explained by the fact that city dwellers do not experience many advantages related to agriculture, but nevertheless they have a positive appreciation regarding to agriculture. In the second place, we notice a spatial differentiation when looking at the group discreet opponents more closely. It is remarkable that in the city of Roeselare as well as in Roeselare-West there are relatively more respondents who have a negative attitude relating to agriculture. The structure of production and the related spatial organisation are responsible for this (this conclusion can also be deduced from the fact that respondents with a farmer as neighbour in the surrounding of Roeselare have a negative attitude toward agriculture, while the opposite goes for the respondents with a farmer as neighbour in the surrounding of Kortrijk). The enthusiastic supporters are decidedly located in the most rural areas of the Interfluvium. The mixed farming system and the idyllic character of this area contribute to the positive attitudes of the inhabitants. Besides spatial characteristics, social and economic factors can help to explain the difference in attitude between certain individuals (the enthusiastic supporters are for instance characterised by a younger age-structure, while the altruistic proponents have an older profile).

The research 'Development strategies for a multifunctional agriculture in peri-urban areas' (Van Huylenbroeck, et al, 2005) already indicated the existence of a regional and local support that plays an important role for farmers (and vice versa). Furthermore, this research indicates that the structure of production and the related spatial organisation have an important influence on the attitudes, expectations and behaviours towards agriculture. If agriculture wants to have a reason for existence in an urbanised and urbanising society, agriculture no longer can and may be considered as an economic activity *sensu stricto*. This postulation is good illustrated by the respondents of Roeselare-West. The population of this region is particularly conscious of the

economic surplus of agriculture, however there is an overrepresentation of opposites of agriculture in comparison with areas where the economic interest of the population is less explicit and where the ecological and landscape value dominate. A spatial planning that has an eye for an integrated point of view obtains social support, can produce a change of attitudes for the country dwellers and therefore is an important item relating to the future.

Alternative planning discourses on the relation between town and countryside, focused on the mesoscale related to agriculture.

The research project starts from the hypothesis in which the quality demands of the society towards specific regions will be decisive for the spatial development perspectives for agriculture in these regions, taking into account the specific Flemish spatial condition of mixed urbanity and rurality. This specific spatial condition requires a specific approach to planning that is no longer based on a morphological distinction between city and countryside but that starts from the complexity of diverse spatial processes.

This part of the research focuses on the relation between city and countryside from three different planning discourses. A planning discourse can be seen as a coherent entity of thoughts on the spatial organization of city and countryside (Hidding et al., 1998). The principle is based on the idea that the relation between city and countryside is the product of human thoughts and actions. These thoughts and actions are currently dominated by an anti-pole discourse in which city and countryside are considered as two clearly separate entities and therefore makes abstraction of the various gradients between both.

The three alternative planning discourses focus on the internal functioning of urban and agricultural systems instead of the morphological distinction between city and countryside. Both systems are characterized by an internal spatial logic and organization. Three different spatial relations between the urban and the agricultural system can be distinguished:

- The discourse of city and countryside as networks of activities focuses on the interaction between the different actors in space. In this discourse the physical and economic network relations between the urban and the agricultural system are explored.
- The discourse of city and countryside as an ecosystem focuses on the interaction between the physical system and the functional use of it. In this discourse spatial relations between the urban and the agricultural system are explored from a hydrological and ecological point of view.
- The discourse of the city and countryside as systems of places focuses on the interaction between the meaning and the social use of space. In this discourse the spatial relations between the urban and the agricultural system are explored from the point of view of the public functioning of space.

Each planning discourse contains an analytical layer and an ordering layer. Analysis includes the theoretical approach which contributes to a better understanding of the relation between city and countryside. In the analytic layer the focus lies on detecting conflicts and potential spatial relations between the urban and the agricultural system. Ordering includes the development of planning concepts and principles as a solution for conflicting and potential relations.

The focus on one specific spatial relation between the urban and the agricultural system by turns (respectively physical and economical network relations, hydrological relations and relations with regard to the public functioning of space) results in a specific differentiation of space with various possibilities for the further development of agriculture.

- In the network discourse the differentiation of space is the result of differences in spatial dynamics which are linked to the specific properties of physical and/or economic networks. The selective (un)linking of water sewage networks, transport networks and energy networks between the urban and the agricultural system makes spatial dynamics verifiable.
- In the ecosystem discourse the differentiation of space is the result of differences in the process characteristics of the underlying physical system. A differentiation of the land use decreases pernicious processes (eutrofy and water shortages) and increases positive processes of the hydrological system (recovery of groundwater flows).
- In the discourse of systems of places the differentiation of space is the result of differences in the communal functioning of the space. The selective manipulation of scale, accessibility and public program allows charging non-significant spatial fragments.

Each spatial differentiation can be translated into complementary spatial units. These complementary spatial units can be perceived as separate '*planning layers*'. Each planning layer is defined by different conditions for agricultural use of space.

- In the network discourse, a differentiation is made between agricultural areas with low and high spatial dynamic. Each area has exclusive potential for agricultural development, ranging from intensive to extensive forms of agriculture (dependent on the relation to the structuring networks).
- In the ecosystem discourse a differentiation is made between vulnerable and non-vulnerable agricultural areas. Each area has different potentials for agricultural development, ranging from environmentally friendly to environmentally taxing forms of agriculture (dependent on the relation to the hydrological system).
- In the discourse of system of spaces a differentiation is made between agricultural areas with a high or a low public character. Each area has different potentials to broadened or deepened forms of agriculture (dependent on the accessibility, the density of public program and the scale).

The introduction of complementary spatial units is accompanied by a new form of spatial harmonization of functions. *Conditional harmonization* describes the internal conformation of various functions within one spatial units, *positional harmonization* describes the external conformation of two complementary units. The internal conformation of various functions within one spatial unit takes place by defining spatial conditions instead of the traditional zoning policy of functions. This new approach allows a functional mix between the urban and agricultural system under the only condition that both functions correspond to the specific predetermined conditions of the spatial unit (residential landscape, production landscape, recreational landscapes, water abstraction landscapes, etc.). Positional harmony is aiming for a balance whereby negative influences are kept to a minimum while positive influences are being strengthened.

The simultaneous combination of the different aspects of the three discourses results in a 'sustainable' scenario in which the three planning layers influence each other: intervention on one planning layer influences and causes for consequences on the other two planning layers. This 'sustainable' scenario - characterized by a multi-layered spatial differentiation - delivers an alternative to the classical differentiation between city and countryside and open up perspectives for a regional spatial differentiation of agriculture. This alternative seems more balanced and therefore more useful for the spatial planning of the countryside in this specific Flemish context of mixed urbanity and rurality.

Economical perspectives of agriculture in relation to planning discourses

The conditions for a sustainable agriculture that this project wants to formulate, depend on the environment in which a farmer is located as well as on the chosen vision (discourse) that is used when studying these conditions. This contribution will describe the strategies of farmers and their future expectations in relation to the planning discourses. It is only after discovering all strengths, weaknesses, opportunities and threats of agriculture today, will it be possible to find out how a farmer will react onto a proposed vision.

First of all, the project has shown that farmers having to comply to different conditions, specified by the environment in which the farm is located, will develop a different strategy. To execute this analysis, a large scaled survey was performed of all farmers in the edge of Brussels and a representative group of farmers in West-Flanders. From this it was found that a farm situated in ecologically valuable areas (like in the interfluvium just outside Kortrijk) are forced (e.g. by environmental standards) to adjust their farm strategy if the farm wants to survive. Conversely, agriculture in an environment of historically grown networks (like in the region around Roeselare) will focus its production more and more towards these networks to reach a sustainable result. A farm located in a region characterised by sites with added value (like in the axe between Kortrijk and Waregem), can adjust as to transform this added value into extra income or sales.

Secondly, it was investigated if by looking at agriculture from different view points, certain environmental conditions would be more or less emphasized, which would lead to different sustainable farming systems. In this project three view points or discourses were studied more in detail.

The discourse which underlines the networks between different actors in an area, puts agriculture in its context in relation to the agro-industry, consumers etc. A farmer who efficiently uses this kind of networks will, according to this discourse, lead to a sustainable form of agriculture. When agriculture is described from out of the ecosystem-discourse, more attention is given to the impact of agriculture on the ecosystem and the possibilities that the ecosystem offers for sustainable agriculture. The wanted type of agriculture, according to this discourse, should take as many ecosystem conditions into account as possible. Choosing a discourse of systems of places describes that even though every agricultural structure in every place can take advantage of the particularity of its location, in regions where policy is focused on strengthening the identity of sites more intense use will be made of this specificity by agriculture. Put differently, each different vision stimulates a different kind of agriculture which has to contribute to a sustainable environment.

However, each vision can be placed on top of the other, as was done for the case-study area of Pajottenland. They will lead to different farming strategies that do not exclude each other. Moreover, the combination of different strategies will lead to an optimal situation for all aspects of sustainability. The results of this applied part of the study lead to a framework that can be used to check for suitable agricultural systems taking into account the specific assumptions one wants to make. In these systems sustainable agriculture is given a specific task in the overall development of an area.

Investigation of modes of landscape transformation on a micro level: towards a sustainable reproduction

Agriculture on a micro level: actor in a multiple landscape

In order to reveal the preconditions for sustainable use of space by agriculture in peripheral regions, this research develops an integrated landscape vision. Specific for this research part is its emphasis on the users that transform space on a micro level. A landscape of consonance is envisioned: a polyphonic landscape in which agriculture produces a qualitative space together with the other users, a space that accommodates and stimulates a sustainable use of space.

In peripheral regions, all sorts of processes gradually but fundamentally transform the open landscape in which agriculture is expanding. It fragments in a multiplicity of functions and shapes created by a multiplicity of users: there is land used for cultivation, the longer the more diversified, for recreation and nature, for dwelling and industrial purposes, etc. Because of the multiple claims of space and uncertain future perspectives, it becomes impossible to unambiguously define this transformation. The development task is therefore rather a tale with open ending of how existing peripheral regions gradually transform. The vision interferes as a frame of action in which a preferred interplay between various actors can be stimulated or coordinated. Yet, for directing territorial dynamics, one needs to understand the logics behind the actual transformations. An understanding of the capacity of the specific space to function as a bearing surface and aligner of the various uses is also required. Therefore those places are searched where the spatial patterns are also – and perhaps mostly - produced: on the scale of the users of the landscape, the farmer, the dweller, the holiday-maker, the ecologist, the undertaker, etc.

Imagination of the landscape

The goal of this research part is to obtain a design approach that produces and imagines a qualitative interplay between the various users. This approach was developed through a combination of literature study and concrete testing on a micro level in three case studies (two in southern West-Flanders and one in Pajottenland). It combines a multiple reading of the existing landscape, scenario-development of what is possible, and a synthesis in a landscape vision that expresses the desirable.

Two atlases analyse the existing landscape in layers. Atlas 1 is a rather static analysis – a reading of the landscape as a lasting/long-term continuum. The landscape is deconstructed in layers of elements and patterns, in layers of now and before. This screening of spatial element and pattern in the landscape reveals its features and structures bringing spatial coherence. In conclusion an abstracted landscape image is presented as a basic structure – bearing surface and aligner – onto which dynamics can graft themselves and that they can interact with. Atlas 2 contains the reading

of the dynamic landscape – of the landscape as a short interval. The focus shifts to the dynamics of change behind the spatial elements and patterns. Modes of transformation are discussed and interpreted. Scenarios test the carrying capacity of space for possible future developments by each enlarging one parameter of use. Atlas 2 thus functions as the transition between the image of the landscape and the spatial vision. That vision brings all parts back together. As being an imagination of the landscape, it detects how fragments of structure and changing modes of use can be geared to one another so a qualitative space exists throughout the transformations. Finally, an initial impetus is given to concrete strategies that make this vision operational within the existing planning practice.

Importance of the intermediate scale and coproduction

In peripheral regions spatial criteria for a qualitative coexistence, amongst others, determine the conditions for a sustainable land use by agriculture on the micro level. The case studies prove that these criteria can be answered in space on a scale mediating between the parcel and the landscape as a whole. Here the territory reveals itself – based upon landscape characteristics, actual dynamic and relations between actors – as a differentiated field of preconditions for further development. Thus the spatial structuring on the intermediate scale seems an instrument for mediation between farmer and government. It is the basic structure of the vision that underpins, as a frame of action, a diversified rural policy which applies rules in an area-oriented way: at some places a specific agricultural dynamic is legitimate, and consequently encouraged, whilst at others it is rather discouraged. By spatially unifying farmers, mutual collaboration is also stimulated, which can further autonomy in their negotiation with the government.

More in general, sustainable spatial development seems to be only established through a coproduction process between various actors: cooperation between government and farmers, dwellers, industry, but also cooperation between planners, ecologists, agronomists, etc. A project-based approach of the open landscape possibly offers a platform for giving concrete form to appropriate tools and formats for spatial coproduction.

Conclusions

The research proposal starts from the hypotheses in which the quality demands by society towards specific regions determines the possibilities for agricultural developments.

The research indicates that consumers and producers cannot be perceived as merely food consumers and food producers but that they are rather assigned to a "territory": there is not just one type of consumer and one type of farmer, but rather a differentiated group on both sides. In the countryside as well as in urban areas there are various attitudes and therefore different expectations of the consumer towards the agricultural use of space. The economical feasibility of individual agricultural enterprises in an urbanizing context grows by integration in chains on the one hand and by various forms of multi-functionalizing on the other hand.

By developing perspectives for the spatial differentiation of agriculture on a meso level from three different planning discourses and by testing the legitimacy of diverse uses of space in scenarios on a micro level, a link is made between different consumers and producers in an urbanizing context. Almost each type of consumer and each type of producer will occur in one of the planning discourses on meso level or in one of the spatial scenarios on micro level. The discussion about

integration of different planning concepts on a meso level and different scenarios on a micro level will be more accessible by developing collective perspectives for different consumers and producers.

The current spatial planning policy results in a mono functional zoning of space in which space is almost exclusively reserved for one specific function (agriculture, natural forest, industry). This planning policy makes abstraction of the plural use of space in the countryside, especially in areas under high pressure of urbanization. The discourses approach on a meso level as well as the scenario approach on a micro level results in specific spatial development perspectives in which the desired quality of regions is defined in terms of dynamics, processes, significances or in terms of spatial coherence (of structure, use and meaning), instead of defined in terms of functions. On the meso level, the spatial differentiation in dynamics, processes and significances is translated into complementary spatial units with different spatial conditions by which various combinations of activities between urban and agricultural systems are allowed on the condition that each functions or activities comply with the compelled spatial condition of the spatial unit. On the micro level, spatial differentiation is translated into the desire to direct spatial transformations by going along with the logics of reproduction of the actors in the landscape. A landscape is proposed made up of multiple micro-landscapes. For each micro-landscape, specific rules of play respond and orchestrate the multiple use of space and simultaneously guarantee the spatial coherence of the micro-landscape.