

Well-functioning landscapes – on re-coupling agricultural and rural development

Lone Søderkvist Kristensen, Tobias Plieninger, Jørgen Primdahl and Erling Andersen

Department of Geoscience and Natural Resource Management, University of Copenhagen

Abstract: Agriculture and rural areas have been considered a unity for a long time; however, increasingly agriculture and rural development are being de-coupling. Due to ideologies of growth, competitiveness, resource-efficiency, expanding food markets and links to vertical flows of energy, feedstuff etc. intensive farming systems are integrated into global markets, but discarded many of their links to local landscapes. This also implies that global network of processing and consumption has become much more important for many farms than relationships to the social-ecological context in which they produce. Rural development in turn is increasingly concerned with nature conservation, tourism and residential developments of various sorts rather than with the future of farming. While agricultural industrialization is the driver of the de-coupling phenomenon in the more productive areas of Europe, the more marginal rural areas are de-coupled from farming through competitive disadvantages leading to wide-spread land abandonment. On this background there is a clear need both for rural development to restructure landscape patterns in a way that they better support multi-functionality (including agriculture) and for agriculture to become a more integrated part of the local place. In this contribution, the tensions between agriculture and rural development will be conceptualized drawing back on a resilience approach. We first examine a general case of high nature value (HNV) farming. The implementation of the HNV concept in rural development programs serves as an example of the challenges that policy making are facing when dealing with a specific kind of farming systems that are coupled to the landscape ecologically, but increasingly de-coupled from social-economic realities. Through two other case studies, we then analyse how, new ways of re-coupling agriculture practices to rural development may be reinstated through planning processes. The paper concludes by reflecting more generally on the conditions for supporting multifunctional landscape through collaborative actions, with a focus on the role that 'alternative farm modernization processes' can play in a rural development context.

Keywords: Re-coupling, collaborative actions, multifunctional landscapes, new institutional arrangement.

Introduction

European rural landscapes are with few exceptions agrarian landscapes – landscapes in which agriculture throughout history has had a key role in maintaining and changing the landscape patterns and in developing (and destroying) cultural, semi-natural and symbolic values associated with these landscapes (Meeus et al, 1990; Antrop, 2005). Agriculture and rural areas have therefore been considered a unity for a long time. In many parts of Europe however, agriculture and rural development are in a process of increasing de-coupling (Woods, 2011). In consequence of prevailing ideologies of growth, competitiveness, resource-efficiency and expanding food markets, intensive farming systems are integrated into global markets, but discarded many of their links to local landscapes (Primdahl and Swaffield, 2010; Renting and Plouf, 2001). Intensive agricultural systems are increasingly linked to vertical flows of energy, feedstuff, food and waste and at the same time less and less connected to the local place (Wats and Goodman, 1997). Strengthening networks in which (mainly urban) processing and consumption play a significant

role has become much more important for many farms than well-functioning relationships to the social-ecological context in which production takes place. Rural development in turn is increasingly concerned with nature conservation and landscape management, tourism and residential developments of various sorts rather than with the future of farming (Woods, 2011). In many regions the economic value of these functions has even exceeded the value of the agricultural production. For rural England for example it is estimated that the total spending of visitors is UK£ 12 billion a year compared with UK £ 5.6 billion a year generated by agriculture (Defra 2007). While agricultural intensification, concentration and specialization are the drivers of the de-coupling phenomenon in the more productive areas of Europe, the more marginal rural areas are de-coupled from farming through competitive disadvantages leading to wide-spread land abandonment. On this background there is a clear need in many (if not most) European regions both for rural development to restructure landscape patterns in a way that they better support multi-functionality (including agriculture) and for agriculture to become a more integrated part of the local place. The coupling or de-coupling between social and ecological subsystems (eg. rural landscapes) has important consequences on the inner structures and functional organization of social-ecological systems such as rural landscapes (Liu et al., 2007, Plieninger and Bieling, 2012).

The negative side effect of the de-coupling processes on the environment has been handled through implementation of various environmental regulations and incentives schemes for introducing more environmentally sound production methods. Incentive schemes (agri-environmental schemes) are mainly implemented through EU co-financed Rural Development Programs, which also recently have introduced incentives schemes for rural development activities based on collaborative governance arrangements (Hill, 2012). The environmental impact of agri-environmental schemes is a contested field and research done during the last 20 years often shows contradictory results, partly related to the various scheme design and degree of uptake, partly related to variation in research design (see for example Primdahl et al., 2003; Fish et al., 2003; Kleijn et al., 2004). Despite many positive effects it is fair to conclude that agri-environmental schemes in most places have not managed to reconnect agriculture and landscape. Many scholars therefore suggest new or additional institutional arrangements in order to rebuild the connection between agriculture and landscape, including more collaborative and adaptive management approaches (Olsson et al. 2004; Hodge, 2007; Franks and McGloin, 2007).

Summing up the coupling of the individual farm production to an increasingly globalized food networks has - combined with other changes first of all various forms of urbanization - gradually de-coupled agriculture from the local landscape (including community) and rural development more generally as outlined above. Consequences of this development to the rural landscape are the subject of this paper. We address two concrete questions: how has agricultural modernization and other socio-economic changes affected the relationship between agriculture and the functionality of rural landscapes? What options for (re)coupling agricultural modernization with the rural landscape can be identified?

Agriculture landscapes, (multi)-functionality, rural development and resilience

To be elaborated

Three stories of decoupling and recent attempt to recouple agriculture production and rural development and landscapes

The case of high nature value areas – Some General reflections

To be elaborated

The case of the Swabian Alb, Germany: High nature value farming

Background

The Swabian Alb is part of the largest Jurassic low mountain range in central Europe. Differences in geological formations and topography have built a north–south sequence of biogeographical regions that have defined settlement development, land-use history, and biodiversity distribution. The foothills in the north have a mild climate, allowing the presence of orchard meadows and sporadic vineyards. The plateau region in the south is slightly undulated. There are strong differences in population densities (ranging roughly between 80 and 500 persons per km²) and socio-economic characteristics between the foothills and the plateau areas. A substantial share of the area's farmlands is considered of high nature value, two of which will be highlighted here: 1) High nature value: orchard meadows and 2) High-nature value: shepherding.

Orchard meadows (Streuobstwiesen) represent a land-use system composed of scattered stands of standard fruit trees within gardens, meadows, or crop fields. The most common fruit trees are apple, pear, plum and sweet cherry. They can cover whole valley slopes, form greenbelts around villages or alleys, or occur as individual trees or tree groups (Eichhorn et al., 2006). Products of orchards are fruits and nuts for direct consumption, fruits for juices, liquors, must or vinegar, hay and fruits as animal feeds, firewood, timber and honey. The many ecosystem services of HNV orchards include soil conservation, regulation of the local climate and visual aesthetics due to their mosaic structure and flowering understorey, recreation or subsistence gardening. The forelands of the Swabian Alb harbour the largest contiguous landscape of this type in Europe, with about 6000 ha of grassland and 600 000 scattered fruit trees.

The Swabian Alb is the only region in central Europe where a unique form of a transhumance system had developed in the past (Poschlod and WallisDeVries 2002). From late spring until autumn, shepherds grazed extended upland areas in the Swabian Alb mountains. During winter the flocks moved to the lowland areas, such as the valleys of the Rhine and Danube and the Lake of Constance basin. Shepherding as the main use of grassland led to the development of large areas of extensive chalk grassland. It is estimated that around 100,000 sheep graze on the Swabian Alb during summer, which is only a fraction of former transhumance. Like many other high nature value farming systems in Europe, the viability of transhumance has been challenged by pressures such as industrialization of agriculture and globalization, and by the difficulty of reconciling the demands of transhumance with a modern lifestyle (Herzog et al., 2005).

Since the end of World War II, several trends have substantially altered agriculture and the rural character of the area. A first important phenomenon is a strong increase of the population numbers and of the settlement area. In the foothill municipality of Owen for example, population numbers grew from 2139 in 1950 to 3449 in 2010. The extent of urban land effectively tripled from 1950 to 2009 in many communities of the area (Bieling et al., 2013). A second trend is the concentration of agricultural production onto a smaller number of large farm enterprises. As a rule of thumb, farms of more than 75 ha size are potentially viable and will further increase in size. Farms that comprise less area will be threatened by abandonment (Seitz, 2008). Given that in some villages of the area, average farm size is around 30 ha, further abandonment of small-

scale farming can be expected for the future. This process of concentration of agricultural production has opened up a polarization of development trends toward intensification of land use on the one hand and extensification/ land abandonment on the other hand. More fertile and less rugged agricultural land, for example in the lowlands, was cultivated more and more intensively. At the same time, steeply sloped lands were taken completely out of production or became afforested. Agricultural modernisation is strongly pushed forward through the cultivation of biomass (in particular corn) for energetic uses in bio-gasification plants, which is now widely practiced throughout the area. In the livestock sector, there are increases in sheep and horse numbers and farms, pointing to the increasing importance of hobby farming in the area. Today, the management of grasslands often depends on such hobby farms.

In consequence of these processes of socioeconomic change and agricultural modernization, people in the study area are mainly employed outside the agricultural sector. Less than 1% of the population receives their full income from farming. To grasp other potential linkages between people and the cultural landscapes of the area, a recent study interviewed local residents and visitors about the ways that the Swabian Alb landscape contributes to their individual well-being. It turned out that the most important aspects (much more frequently cited than food production or other farm-related aspects) are the cultural values of the landscape. Beauty, naturalness, and integrity of the landscape, tranquillity, feeling at home, the mountain scenery, hiking experiences, and recreational opportunities were among the most salient attributes (Bieling et al., under review).

But despite the current decoupling of people from agricultural production, a participatory exercise (Plieninger et al., 2013) revealed that local people consider the agricultural sector highly relevant for determining future landscape trajectories. According to the view of participants, a desirable future of the Swabian Alb landscape will appear provided increasing consumer preference toward high-quality and regionalized agricultural produce. The desirable scenario also expected a preservation of the status quo of state support programs for rural development as well as stricter regulation of production processes in rural areas. In turn, a negative scenario was expected for the case that future consumers would aim to pay as little as possible for food, with no interest in quality or local origin. This would be further deepened if the state would, by and large, cede all relevant support programs and regulations, thus leaving the agricultural and food sector to “free-market” forces.

Re-coupling strategies: Biosphere reserve

Over years, the area has seen efforts to preserve the regional diversity and value of landscapes while seeking to identify pathways to a more sustainable future. Starting in the early 2000s (but rooted on civic engagement that goes much further back), strong local-level action developed aiming for models of re-coupling and in particular fostering synergies between nature conservation, agriculture, forestry, craft, tourism, and culture. These activities were often organized through partnerships of land users, conservation activists, local businesses, and consumers. Some years later, the various bottom-up activities were formally bundled under the umbrella of the newly established Swabian Alb Biosphere reserve (85,000 ha), which endorsed by UNESCO in 2007. The region decided for a biosphere reserve rather than another protected area type as it was assumed that these would more effectively re-couple land-uses, nature conservation, and rural areas. Among other things, biosphere reserves follow an inclusive conservation strategy that integrates land uses in different intensities and different land ownership types, and they designate multiple management zones with different foci, from total protection to more development-oriented aims (Schliep and Stoll-Kleemann, 2010). To achieve the aimed re-coupling between agriculture, nature conservation, and rural development, the region formulated specific goals that focus on nature conservation, land use, and the synergies between both. Supported by state conservation and rural development schemes (PLENUM, Region Aktiv), these goals translated into a

diverse number of projects and activities. Many of these projects take a market-based approach, implying that re-coupling efforts may be strengthened through cultivating, processing, and marketing of local produce.

Activities around orchard meadows include for example the introduction of a local marketing brand that specifies criteria about local origin and production. Between 7500 t and 45000 t of fruits are each year processed to apple juice and sold under such brand. In the shepherding sector activities seek to improve viability of enterprises through improved infrastructure, e.g. through modernization of commonly used sheep pens. Regional-scale marketing of sheep and goat products is another important field.

The case of Karby Denmark: a rural parish with intensive agriculture and high nature value

Background

Karby is the name of small village and a rural parish in Northern Jutland, Denmark. The parish is about 19 km² in area with a population of app. 500 people (27 inh/ km²). Compared to other parishes in Jutland it is relatively small (in area). As the size of parishes historically was determined by population density this is an indication of good conditions for agriculture and/or fishery. The landscape is geologically of a young age formed by glacial processes during the last ice age and post-glacial processes first of all the natural uplift which in this region has raised the area by a couple of meters since the ice cap melted away. Most of the parish is covered by undulating moorlands with fertile and well drained soils. The parish is situated at a fjord and along the 20 km coast line there are salt marshes, which are frequently flooded, highly valuable semi-natural grasslands. The salt marsh contains valuable botanic communities and the salt marshes at Karby are international importance as feeding ground for migrating birds. They are designated NATURA 2000 habitats and high priority areas for agri-environmental schemes to support extensive grassing for maintaining the functions as valuable habitats.

Today the agricultural production in Karby is characterized by industrialized pig and dairy farming. Although there are livestock on three quarters of the 44 farms participating (out of total of 49) in a survey in 2011 (Aagaard et al., 2011) the main dairy and pig production is concentrated on a handful of large farms and the livestock density is among the highest in the country with more than twice the density of pigs per ha farmland (app. 29/ha incl. piglets) and three times the density of dairy cattle (app.1.5/ha incl. young stock). The pig and dairy farmers deliver their products to large cooperatives which function as multinational companies operating on global food markets. Whereas the salt marsh areas historically have played a significant role in the agricultural system as grassing area for cattle they have today no or only marginal significance as grassing area. Although farmers since 1990 have been offered payments through EU agri-environmental schemes for maintaining extensive grassing, great parts of the area has been without grassing for longer periods leading to loss of habitat values. This indicates that incentives through agri-environmental schemes do not do the job alone.

Although the agricultural production has increased significantly in recent decades the number of people employed by agriculture and related services has gone down. Also most other types of businesses have closed down implying that majority of the inhabitants in Karby are commuting to jobs outside the parish. All shops (except for a small grocery store) and other services are gone and the formerly lively village is in decline, population is going down and the housing quality is relative poor. This situation is typical for the rural periphery in great parts of Europe. Although there is an intensive and relative competitive agricultural production located in the parish contemporary farming to do only to a limit degree contributes to the local economy and the individu-

al farm business is more closely linked to a vertical network of supply and processing enterprises located far way than to the local community. This does not mean, however, that the farm families do not relate to the parish as a living place. When farm families were asked if they “primarily owned the farm because it was: (1) good place to live, (2) a good place to produce, or (3) an equal combination of the two motives', most farmers either said ‘a good place to live’ (44%) or and equal combination (37%). Only a few answered ‘primarily a production place’ (14%). Those farmers answering ‘living place’ as the primary motive for owning the farm were either part time, hobby farmers or pensioners, whereas the full time farmers either mentioned ‘equal combination’ or ‘production place’ are the primary motives (Christensen et al., 2011:13).

Summing up the agricultural production in Karby over time has become less coupled to the parish, both in respect to the local community and the bio-physical conditions. However within the last few years the community has been involved in processes which to some degree have changed this pattern.

Recoupling strategies: Landscape strategy making

In 2010 the village in cooperation with the municipality and with support from a state program started a process of ‘village renewal’. A plan for condemnation of village homes in a tumbledown state, and enhancement of public places were made and funding for a number of projects was provided. At the same time people from the village and the surrounding farms decided to participate in a municipal planning project called ‘The village and the landscape’. The aim of this project was to develop a landscape focused development strategy for the parish. The project formed together with three other projects (located in other municipalities) a kind of 'experimentarium' in an action research program on integrated and dialogue based landscape planning (Primdahl et al., 2013).

Over three years a landscape strategy for the parish was developed through a series of processes inspired by Patsy Healey’s work on place making and spatial strategy making (Healey 1996, 2009). A common interest for rural landscape of Karby was established through a so-called narrative workshop where external experts (historian, biologist, landscape architect and agronomist) were invited to present their ‘story’ based on their academic/professional background and individual perspective on the parish. Children's view of the landscape was brought into the process through poetry and painting workshops and a common excursion to a restored wetland provided a full scale example of possible initiatives to take. A farm survey was carried out to gain information on agriculture, the farmers' view on the landscape and the farmers' considerations on the future of their farms and farming. Four workshops were organized to produce a common vision for the area with concrete objectives and projects linked to it. The workshops were organized so that external and local knowledge was mobilized and brought together. University academics, municipal planners, and landscape architects were participating together with local village residents and farmers. In one of the workshops the local strategy group presented the first draft of their strategy at a meeting where team of external experts participated. This team then presented their quick and dirty proposal (produced during a full day work) for a landscape strategy and then there was a long and fertile ‘confrontation dialogue’ between the two teams. New ideas and perspectives from this dialogue were subsequently build into the landscape strategy of the local strategy group and presented to the wider public on a public announced meeting.

Overall the strategy was based on a vision for “a well-functioning village in a (green) agricultural environment which is attractive to tourists because of the natural assets”. At the time of writing – about 1½ a year after the strategy was presented no less than 54 specific ‘actions’ have been identified and 9 working groups are formed to work with the implementation of the various projects. Obviously this process also includes the clarification and judgment of the realism of the different actions. One of the most successful projects implemented until now (besides different initiatives

in the villages) is the fencing of a 250 ha large common grassing area in the salt marshes, and negotiating of agreements with local farmers on grassing of the area. The results of strategy process so far is, that a frame and a vision for the future of Karby and landscapes has been developed, a number of collective actions has been taken and the community of Karby is brought into a constructive dialog and cooperation with the municipality and other the regional organizations (the nature conservation association and the tourist sector). These processes obviously have contributed to new social connections. On one hand connections to new 'external actors' and on the other hand new internal connections: Cooperation among farmers concerning habitat management (the marsh land) and cooperation among farmers and other residents on some smaller ecosystem restorations. The new internal connections indicate a certain degree of re-coupling of agriculture with the rural community and with rural development. However, the strategy process did not succeed in bringing the more productive part of farming into the strategy process (the industrial livestock production) or to identify new perspectives on the future of farming.

Discussion and conclusion

Our two case studies differ in size, geo-physical composition, type of agriculture, population density, population development and closeness to urban centres leaving the two cases with very different framework condition for agriculture and rural development. Despite these differences the two areas have undergone many of the same decoupling processes due to farm modernisation: decoupling of inhabitants from agriculture, concentration of production on few and bigger farms, polarization of the landscape in intensive used areas and areas of abandonment or /extensive land use. In terms of recoupling strategies, however, the two areas has undergone different process. Due to the landscape quality, the presence of more traditional farming types and a long term civic engagement is has been possible to designate the Swabish Alps for a Biosphere reserve. Through this framework strategic actions have been identified and implemented contributing to the rebuilding and strengthening of the connection between farming, landscape and rural development. By the process public goods has been improved but also farming has got added values (through the branding and new infrastructure). In the Karby area there has not been the same long term civic engagement in landscape and conservation issues and it has be possible for agriculture to develop without much opposition from the local community. People from the village have mainly been concerned about the closing down of service functions of the village and the decay of the more build environment. In the strategy process much effort therefore was allocated to awareness raising and building up a kind of 'common sense making' about the landscape. The result of the strategy process may therefor seem modest; however, the awareness raising and the building up of new networks both internal and external should not be underrated. Strategy processes including visions for agriculture as business and the future development of agriculture may demand another type of processes than ones which been designed in the Karby process. It is our hypothesis these type of question could have been better handled in a forum of mainly farmers and related organisations.

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