

## Environmental benefits through agriculture and forestry value chains - keys of success from 13 European case studies

### Background and objectives

While a lot of research has been performed on the effects of publicly funded agri-environmental measures (AEM) on the provision of agri-environmental-climate public goods (AECPGs), much less is known about value chain approaches, in which AECPGs delivery is connected with the production of private goods. Market-based instruments for biodiversity conservation have been perceived as cost-efficient and effective instrument (Krause et al. 2020). Value chain approaches in particular, can additionally contribute to meeting the growing consumer demand for environmentally friendly products (Chobotová, 2013). Moreover, key players in the supply chain, like food companies and retailers, have increasing interest in environmental benefits delivered by supplying farms as part of their marketing strategies and therefore provide support through finance and specific contracts (Kempa, 2013). Implementing such contract mechanism however requires assistance and acceptance of the actors concerned (Macnaghten & Jacobs, 1997). To better understand the keys of success of value chain-based contract solutions, the EU H2020 project CONSOLE investigated 13 case studies from eight EU countries, in order to identify influencing factors and design principles leading to effective implementation.

### Data and methods

For our research we used the strategy of an exploratory case study approach, allowing for deeper insights into the diversity of different solutions. All 13 value chain contract solution investigated represent examples of contract solutions with innovative characteristics, which are already implemented, at least at pilot scale. They all follow a similar format, namely the production of a private good in compliance with certain environmental requirements set down between the value chain actors (in some cases also involving NGOs) on a voluntary basis. Mostly, they involve farming types specialised in the production of a specific, marketable product (e.g. rice, olives, honey, meat, etc.) (Table 1). The case studies cover different AECPGs: biodiversity/habitats, landscape and scenery, water quality and quantity, farm animal health and welfare, soil quality (and health), climate regulation - carbon storage, climate regulation - greenhouse gas emissions), alongside with rural viability and vitality, quality and security of products. "Biodiversity/ habitats" is most frequently addressed (Table 1).

**Table 1:** Main characteristics of the 13 value chain-based case studies from eight European countries.

ID	Characteristics			AECPGs*						
	Ctry	Syst	Init	B/H	Sq	Cr/c	Crg	LaS	Fah	Wq
VC1	AT	meat	farmers							
VC2	BG	semi	farmers							
VC3	BG	meat	farmers							
VC4	FI	peat	NGO							
VC5	FR	mix	gov							
VC6	DE	mix	NGO							
VC7	DE	grain	gov							
VC8	IT	grain	comp							
VC9	PL	grass	comp							
VC10	PL	grain	comp							
VC11	ES	rice	farmers							
VC12	ES	wine	comp.							
VC13	ES	olive	n.i.							

ID = Identification number; VC = Value Chain contract; Ctry = Country; AT = Austria, BG = Bulgaria; FI = Finland; FR = France; DE = Germany; IT = Italy; PL = Poland, ES = Spain, Syst = types or system of farm/forestry; meat = grassland with meat production; semi = semi-natural habitats; peat = peatland; mix = mixed systems; grass = grassland; Init = Initiator of the contract solution; NGO = non-government organisation; comp = company; gov = government; n.i. = no indication; fa = organic farming association; B/H = (Farmland) biodiversity and habitat; Sq = Soil quality; Cr/c = Climate regulation - Carbon storage; Crg = Climate regulation - greenhouse gas emissions; LaS = Landscape and scenery; Fah = Farm animal health and welfare; Wq = Water quality

\*AECPGs: dark grey box: Main AECPG objectives addressed by contract solution; light grey box: Additional AECPGs considered by the contract solution

To guarantee a uniform and structured process of data collection and assessment, a protocol containing guiding question on design issues, characteristics, and reasons for success was applied. Data was collected through interviews and workshops with involved actors, and by using grey literature (project reports, research reports, homepages, etc.). Data was then analysed by means of a qualitative content analysis. A starting set of codes was deductively derived based on the protocol of data collection and the screening of literature, while additional codes were added based on insights while conducting and coding the case study information material (Bortz & Döring, 2015). The coding of the data material was technically supported by the computer-assisted qualitative data analysis software 'Atlas.ti'.

## **Results**

As the result of the analysis, five broad themes emerged, revealing the most relevant factors and design principles shaping the successful implementation of value chain-based contract solutions.

### *1. Independence of public funding and bouncing on the current consumer trend*

The majority of the case studies (10/13) represent purely market-driven approaches, without public funding, which is perceived as a strength in itself (4/13). A stated reason for food companies to start or join environmental value chain contracts is the improvement of their image: *"The main advantage [for the company] is the possibility to market and to communicate the sustainability of its production"*. Engagements for an improved/greener image are driven by consumers' demand for products from sustainable and regional production (9/13). By means of a sound marketing, clever branding (10/13), and a thought-through communication strategy (5/13) highlighting environmental advantages, origin of the products (e.g. from protected areas), and the potentially higher quality of the products, higher consumer prices can be realized.

### *2. Increased producers' profitability through higher prices*

A key factor for producers participating in value chain contract solutions is the possibility to receive higher product prices by fulfilling additional environmental requirements (9/13) even on top of AES (3/13). In one case, where acceptance among farmers is particularly high it is stated that *"Farmers get a good price for the cereals. The indicators of the economic performance show that the price premium for organic pasta/wheat production is high at both, farm and processing levels"*. Moreover, purchase guarantees minimize risks and increase acceptance on the farmers' side (3/13).

### *3. Collective element*

In several case studies producers have joined forces (8/13) e.g. in form of entering a cooperation, association, or producer organisation. In the forestry case study, collective engagement is even a prerequisite for joining. Farmers cooperate, particularly to bundle their bargaining weight. The resulting direct benefits from the merger are a better price, as well as common organized marketing (collective brand), storing, processing, and distribution of the goods, according to our analysis.

### *4. Regional embeddedness*

A strong regional focus, with special involvement of local partners along short value chains, supports success (4/13). It benefits the regional economy and relationships between partners build up more easily due to personal contacts. In some cases, the contract solutions are based on pre-existing relationships (4/13). Yet, the dependence of farmers on a single contractual party (processor, distributor, and retailer) was also considered as a threat in some cases (3/13).

### *5. Trust and transparency, equity and fairness*

High levels of equity and fairness are achieved, if producers are involved in the discussion of the environmental efforts to be laid down in the contract arrangements from the very beginning (5/13), or if close and long-standing relationships exist between the contracting partners, e.g. between

producers and retailers (4/13). Reasonable, clear, and acceptable contract conditions, and the same rules and basic prices for all partaking producers are crucial for perceived equity and fairness. Cases reported that trust is created by meetings and the mutual visiting of all actors of the value chain.

### **Discussion and conclusions**

We identified five key themes supporting the successful design of value chain-based contract solutions. First, the market-driven approach is perceived as a reason for success itself, further increased by sound marketing strategies and branding. This is in line with Kempa (2013), showing that companies are interested in the depiction of environmental benefits of supplying farms for their marketing strategies. However, it is crucial to avoid greenwashing of companies' reputation by making a real difference in practice (De Schutter, 2017). Second, increased profitability through fair payment rules, guaranteed product purchase and price premiums turned out to be a lever for increased acceptance and demand for such contracts by the producers. It becomes obvious that the financial reward of higher product quality and the environmental benefits of the products can increase farmers' and forest owners' demand for such contracts. Third, there is an influence of collective elements on the success of value chain-based solutions: farmers and forest owners improve their position in the value chain and can benefit from mutual exchanges enabling them to produce particularly environmentally friendly. Finding collective elements in the successful examples might also reveal the need for specific skills to jointly provide AECPG and document this provision for the value chain. Hence the collective element might also correspond to training and technical skill sharing, necessary for success. Fourth, our findings show that building contracts on already existing structures and relationships, as well as focusing on regional and short value-chains leads to easier implementation and cost reduction. This is in line with Chobotová (2013), stating that the successful implementation of market-based instruments for biodiversity conservation in Central and Eastern European countries is influenced by already existing formal and informal institutions. Furthermore, Chobotová (2013) and Krause et al. (2020) argued that reputation and trust may play a role, which in turn supports our result, that guaranteeing good levels of equity and fairness, as well as a high level of trust and good communication enhances acceptance among the contracting parties. Further research should be undertaken to investigate the collective element, the regional embeddedness as well as trust and transparency in value chain contracts.

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