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Provision of climate advice – environmental governance in Swedish agriculture

Keywords: climate change, provision of advice, agricultural extension, discourse, environmental governance

Abstract

Climate mitigation is both a pressing and complex task. Due to its participatory and potentially capacity-raising features, the provision of climate advice could be an effective policy activity. This is not least the case in agriculture, a sector with high GHG emissions and relatively clear institutional structures. The article investigates the feasibility of climate advice in a Swedish public-private context through the examination of agriculture extension consultants' discursive activities. This case demonstrates that, rather than promoting substantial change in practices, the climate issue is used in support for conventional efficiency-increasing measures and to change the descriptions of prevailing agricultural activities. The embedding of discourse within agricultural extension and a lack of clear mitigation goals reduced and adapted the climate issue to the narratives prevailing among farmers, well aligned with conventional economic policy goals. This lock-in could be addressed by establishing clear and radical reduction targets and a broader involvement of stakeholders.

Introduction

In many respects, climate change is the greatest challenge for a sustainable development. The problem already has threatening dimensions (Steffen *et al.*, 2011; WWF 2012), and it's escalating (NOAA 2012; PBL 2011). Moreover, its global scale and the diverse and interlinked nature of emission sources impair the possibilities to reach comprehensive sustainable agreements, to organize and to enforce rules (Gardiner 2001; Ostrom *et al.*, 1999). One possible policy strategy would be to reduce some of these complexities, e.g. by developing sector level climate mitigation policies. Such a strategy would, however, need to meet the challenge to reach beyond conventional eco-efficiency solutions, as the resulting decline in relative emissions are counteracted by growth and rebound effects (Frye-Levine, 2012; York and Rosa, 2003).

In such a quest, agriculture and food production would be a sector of importance, accounting for 10-12 % of global greenhouse gas (GHG) emissions (IPCC, 2007), and 30-35% when deforestation is included (Foley *et al.*, 2011). Furthermore, compared to other industries, agriculture is already thoroughly regulated, e.g., within the European Union through the Common Agricultural Policy (EU CAP). Thus, there are institutional structures in place that could be utilized for inducing GHG reductions.

However, policy making under the regime of EU CAP has gone through major reforms and now shows signs of "environmental governance" (Daugbjerg and Swinbank, 2007; Feindt, 2010; Jordan *et al.*, 2003a, 2005). This highlights that governments rely on soft forms of regulation, entailing participation by businesses or civil society (Bulkeley and Mol, 2003; Rauschmayer *et al.*, 2009). Participation could occur during development or implementation of policy, and implies voluntary and consent-based processes rather than command and control. Such processes could potentially raise the capacity among those subject to regulation (Taylor *et al.*, 2012), and, given that practice is often deeply embedded and sometimes

unresponsive to both economic incentives and legislation, such capacity might be crucial for the outcome of policy (e.g., Gouldson *et al.*, 2008).

An example of policy instruments that could meet this description is the provision of advice and information (Steurer, 2011; Taylor *et al.*, 2012). Those subject to such policy participate in an exchange of knowledge and information and are not compelled to comply with suggested changes in practice. Moreover, by disseminating expert knowledge in a participatory context, provision of advice could enable these actors to contribute to the realization of policy goals.

Provision of advice has become increasingly popular within Swedish agro-environmental policy, i.e. increased both its geographical scope and range of concerns (Statistics Sweden *et al.*, 2012). It operates under the EU CAP, alongside command and control and various financial supports. Advantages are that advisory programs can be set up rapidly, and that they circumvent industry reluctance towards regulation. Advice is provided through agricultural extension (AE) services and includes information of environmental consequences, e.g., GHG emissions, as well as ideas about changes in practice.

Given the importance of climate mitigation, this raises questions about the feasibility of climate advice as a policy instrument within agriculture. On the one hand, the cooperative and inclusive approach may raise capacity and thereby enable real implementation and change (Gouldson *et al.*, 2008; Taylor *et al.*, 2012). On the other hand, environmental ambitions may be lost in a negotiating game in which costs, competitiveness and prevailing skills and practices are among the counterparts (Jordan *et al.*, 2003b). Hence, provision of advice might become too embedded into existing narratives and institutions, as these are articulated by farmers (cf. Morris, 2006). A particular problem is that the issue itself, i.e. climate change, affects stakeholders distant in both time and space, stakeholders that for obvious reasons do not participate in policy processes (Gardiner, 2001).

What, then, would be the outcome of climate advice as part of climate mitigation policy? Following the social constructionist tenet that language is fundamental for shaping meaning and ultimately action (Hajer and Versteeg, 2006) – and given that climate advice entails the provision of talk – the outcome of the process may be assessed by analyzing the discursive activities of extension consultants. With a particular focus on those discursive activities, the purpose of this study is to explore the feasibility of climate advice. The article contributes empirically to the study of environmental governance through exploring the provision of advice as a means to climate change mitigation.

Theoretical background

Environmental governance

In a broad sense, governance denotes “the ways in which governing is carried out without making any assumptions as to which institutions or agents do the steering” (Gamble, 2000: 110). The state or other agents may govern using any of the commonly discussed modes of

hierarchies, networks and markets (Steurer, 2011). However, governance is also used to denote a particular way of steering in different policy areas, e.g., environmental governance (Jordan *et al.*, 2005). Governance here draws its meaning from its distinction from what is commonly labeled as “government”: the hierarchal, command and control model where the state defines both ends and means within a particular policy area – and enacts them through legalistic measures. In this discussion, the prime interest is on the changing nature of policymaking, the changing roles of actors involved and policy instruments utilized (Gouldson *et al.*, 2008; Taylor *et al.*, 2012). Here, we follow Jordan *et al.* (2013), and see the usage of new environmental policy instruments (NEPIs) as the empirical correspondent of environmental governance.

Examples of NEPIs include emission trading schemes (Pinkse and Kolk, 2007) and eco-labeling (Jordan *et al.*, 2003a, 2003b). One particularity of NEPIs is the influence of stakeholders, including the ultimate subjects of regulation, over formulating policy’s ends and/or means (Jordan *et al.*, 2005). It should be noted that the roles and degree of influence in such arrangements, between the state and its agents and other stakeholders, vary a great deal. Regarding some instruments, the state may define the goals but let private actors decide the ultimate means – as in Cap and trade, which basically allows industry to take any measures to reduce the need for carbon credits – while as in others, stakeholders may be involved in setting the actual goals.

In spite of the inclusiveness of this approach, it naturally poses a great challenge to address climate change, which affects people globally as well as future generations, i.e. stakeholders who cannot participate in the process of deciding the means and goals of sectorial policies. However, the assertion that NEPIs are becoming increasingly common, e.g., in the EU (Jordan *et al.*, 2005) calls for increased effort into exploring how different instruments work “on the ground”. Moreover, given the importance of climate mitigation, one essential starting point for devising appropriate political strategies would be to start with instruments that are gaining popularity, and try to understand their feasibility.

Provision of advice as a NEPI

The increased usage, e.g., in Sweden, of provision of advice as an agri-environmental policy instrument can be understood as part of the trend towards environmental governance. Advice is provided through AE services and can be categorized as an informational device aimed towards producers (Jordan *et al.*, 2003a). Although AE services are often thought to origin from the so-called “Land grant colleges” – as a device for transferring scientific knowledge, aiming to increase agricultural productivity – their tradition as well as purposes is much broader (Blackstock *et al.*, 2010; FAO, 1997). Contemporary purposes range from poverty alleviation (Dercon *et al.*, 2009), to the diffusion of new techniques (Picciotto and Anderson, 1997), and, of recent importance, AE addresses environmental aspects of agriculture (Blackstock *et al.*, 2010).

Previous studies have located AE services as intermediaries, e.g. viewing the performing agents as boundary organizations (Carr and Wilkinson, 2005), between science and practice. Framing AE within the context of environmental governance is, to the best of our knowledge,

new to the literature, and positions AE services in-between, not primarily science and farming, but policy makers and farmers. Such deliberative policy implementation is motivated by the Habermasian ideal of “communicative rationality”, whereby practice change can be achieved through dialogue and learning (Habermas, 1984; McCrum *et al.*, 2009). This parallels the civic model of environmental policy, as compared to the more instrumental information deficit model (Bulkeley and Mol, 2003). It also demonstrates the paradigmatic shift from knowledge transfer to knowledge exchange in extension and some of the rationality underpinning environmental governance (Blackstock *et al.*, 2010; McCrum *et al.*, 2009).

Hence, AE incorporates a great degree of voluntarism, both in farmers’ decision to receive extension and, ultimately, in their adherence to the provided advice. In Sweden there are cases where AE is mandatory, for instance before making particular investments, but the implementation of a given advice at the farm is not. Thus, although individual farmers may only indirectly affect the goals of policy, they more or less control its means, determining if or how advice will lead to practice changes.

It should also be noted that AE, as other NEPIs, often works in tandem with other instruments (Jordan *et al.*, 2003). Advisers may for instance inform about consequences of laws and regulations, or point at existing subsidies and financial supports. However, besides accentuating “sticks” or “carrots”, advisers might raise the capacity among farmers regarding how to reduce their emissions, targeting the embeddedness of practice (Gouldson *et al.*, 2008). Moreover, in the Swedish example, advice is shaped through activities at multiple levels which feature both private and public actors.

Provision of advice as discursive activities

When AE is studied as a practice of providing information and advice in a setting characterized by knowledge exchange and voluntarism, the dissemination of text and predominantly talk is central. Subsequently, we understand AE as a discursive activity (Hardy *et al.*, 2000) albeit recognizing that there are non-discursive dimensions, e.g., contextual economic factors, use of technical artifacts, symbols and non-verbal communication. In focusing on the discursive activities of AE consultants, we draw on the tradition within analysis of environmental policy that has emphasized discourse and its link to social construction (Feindt and Oels, 2006; Hajer and Versteeg, 2006; Maguire, 2006). Hence, provision of advice is understood as discursive activities that contribute to socially constructing climate mitigation, i.e. its meaning, in this particular context.

We understand discourse as “a specific ensemble of ideas, concepts and categorizations that are produced, reproduced and transformed in a particular set of practices and through which meaning is given to physical and social realities” (Hajer and Versteeg, 2006). Discourses are embedded in language, enacted through discursive activities, and play a decisive part in shaping how actors understand and act within their world (Dryzek, 1997). This means that discourses have power, but we distance ourselves from the Foucauldian focus upon social construction of knowledge (cf. Foucault, 1980), and instead focus upon the construction of meaning (Feindt and Oels, 2006). Changes in meaning, e.g. ascribed to practice, may be particularly important in order to spur change in that practice (Hardy and Maguire, 2009),

This suggests a link, albeit not always a clear casual one, between how talk about practice is constructed and how its called upon subjects eventually come to act.

Furthermore, we assert that discursive activities of extension consultants are shaped by, and simultaneously, constitute, a particular local discourse, recognizing that edges are fuzzy in terms of which actors that adhere to the discourse as well as its relations to other discourses. It should not be viewed as a “stand alone” entity but rather as embedded in wider discourses, e.g., be viewed as a local enactment of global discourses, such as ecological modernization (Hajer, 1995). Recognizing that other scholars have performed important work in mapping out global discourses in the environmental area (see Dryzek, 1997, or Hopwood *et al.*, 2005, for examples) we hold that the analysis of local discourse has a value in itself as it is through agricultural practice that GHG reduction occurs. Policymakers, media and NGOs – reproducing global discourse – may affect how climate mitigation is talked about on a policy level, but consultants have a better shot at actually affecting the production of meaning of agricultural practice and therefore this group is a valid target for analysis. Arguably, trusted advisors affect the meaning farmers ascribe to their own practice, e.g., its legitimacy (Sutherland *et al.*, 2013).

Whereas discursive activities equate the empirically observable statements, the discourse is in itself not readily observable but can be captured through analytical techniques referred to as discourse analysis (Dryzek, 1997; Wetherell *et al.*, 2001). Out of many approaches – grounded in different epistemological and ontological positions (Feindt and Oels, 2006) – we adopt the discourse analysis introduced by Dryzek (1997) as it focuses on the construction of meaning.

Analytical framework - discourse analysis according to Dryzek

Dryzek (1997) describes discourses as containing four basic elements that enable stories to be told, i.e. the observable discursive activities:

- E1) Basic entities recognized or constructed
- E2) Assumptions about natural relationships
- E3) Agents and their motives
- E4) Key metaphors and other rhetorical devices

E1 captures the basic ontology or world view within a particular discourse. It describes entities in the world that are perceived and categories that are recognized, e.g. farmers, particular practices, problems, etcetera. E2 describes the assumed contingencies and relationships between entities, such as producers being “controlled” by consumers or lenders, or that the possibilities to address an environmental issue through national policy is linked to issues of technology, competitiveness and environmental leakage in a globalized economy (Dryzek, 1997). Here, it could be somewhat left open if such assumed relationships are descriptive or normative. We may for instance hold that the global economy works in a particular way rendering local environmental initiatives futile – but still acknowledge that this is regrettable. Or we may hold that the global economy provides benefits for all. Given that discourse enables stories, and stories require agents, these are captured by E3. E4 captures particular rhetorical devices – including metaphors – that seek to convince listeners.

Rhetorical devices may for instance include appeals to legitimate institutions e.g., to science or market, that appear to support statements that are part of the discourse.

Given the governance context, as well as the focus on AE, we might expect a discourse that is strongly influenced by the interests of farmers as well as by contemporary policy discourse (e.g., competitiveness, employment and economic growth). On the other hand, the climate change issue as such calls attention to the needs of stakeholders distant in time and space. Moreover, climate change is not just any environmental concern. It is urgent and escalating, pointing to catastrophic events that may threaten humanity as such (Rockstrom *et al.*, 2009; Steffen *et al.*, 2011). This imbalance between problem and context for its solution suggests a tension to be handled in the discourse and a need to explore it.

Case study

Given that AE activities to address climate change are recent and emerging phenomena, we deployed a single case study design. Yin (2005), Sigglekow (2007), among others, argue that case studies are useful in such circumstances. The case consists of AE within a climate mitigation project led by a Swedish public-private organization, with discursive activities of AE consultants as our unit of analysis. Our focus on discourse motivated the usage of qualitative methods for data collection and analysis.

Climate advice constitutes a newly developed module made available to Swedish farmers through a network of public and private organizations within the agricultural sector (see figure 1 below). The advice addresses all types of farmers and production systems (see table 1). At the center of the network is a public-private project organization, named “Greppa Näringen”¹ (GN), recently celebrating its 10th anniversary. GN is jointly run by the Swedish Board of Agriculture (SBA – the state agency responsible for the agricultural sector) and the Federation of Swedish Farmers (LRF – the dominant trade association for Swedish farmers). GN draws its finances from re-payments of an abandoned fertilizer tax – channeled through LRF – as well as Rural Development funds (part of EU CAP) and acts as an umbrella for AE practices: educating and certifying consultants, collecting information, communicating with its owners and developing teaching modules that consultants utilize in their practice.

Insert table 1 approximately here

GN was originally established as a means to address the escalating problem of eutrophication, which gained public attention during the 1980s due to toxic algae bloom around the Swedish shore lines. Eutrophication was partly attributed to the extensive use of fertilizers within agriculture. While Denmark, a common referent for Swedish agricultural actors, regulated

¹ Roughly translated to Capture the Industry, but in Swedish “näringen” has a double meaning as it also denotes nutrients.

fertilizer use by imposing quotas and restrictions, Swedish policymakers chose a mix of voluntary measures and financial incentives. It was in this context that GN was set up as joint project between regulators and industry. First having focused on raising farmer's awareness of fertilizer usage, GN came to embrace other environmental issues, including pesticide use, soil destruction and reduced tilling. In addition, GN has recently expanded its operations geographically and now covers more than half of Sweden. GN is regularly presented as a "success story" and as evidence that its approach is effective, e.g. through data indicating that fertilizing has decreased on participating farms (Statistics Sweden *et al.*, 2012).

Insert figure 1 approximately here

Since GN does not employ any consultants, AE services are provided by companies of various sizes that bid on providing the GN-extension. Bid-winning consultancies conduct farm visits and discuss problems and possible interventions with farmers. Farmers sign up for at least three visits, cost free, as consultants are paid through the county councils. In-between mandatory start and follow-up visits, farmers can choose between existing modules. Provision of climate advice, as a module in this AE system, saw its first round of 34 certified consultants in 2010 with activities commencing shortly afterwards.

In order to capture the discourse of AE consultants, we performed a series of qualitative interviews as well as participant observations, targeting the whole population of certified consultants. Among these, 3 operated their own consultancies while the rest worked for larger organizations. All 34 (25 women and 9 men) were contacted through e-mail and asked for an interview. However, 7 never returned the e-mail, despite two reminders, 6 were excluded for being too inexperienced with the module, and an additional 2 decided not to participate as they had switched to other duties. Hence, 19 consultants were interviewed, and four out of these were interviewed twice (see table 2). In order to provide a broader basis for the identification of discourse, one of the authors participated in five farm visits and in one group meeting between farmers and a consultant.

Insert table 2 approximately here

Interviews were semi-structured revolving around a few key questions e.g., the purpose of the climate advice, important stakeholders, knowledge about climate change and provision of advice in practice (see table 3). These questions were purposely broad as to provide room for consultants' own reflections, and in order not to determine the discourse as interviewer. Obviously there is a great risk that the discourse provided through the interviews will depend on the type of questions posed to the respondents. However, most consultants appeared to have no problem in talking, reflecting and going beyond the interview questions to explain

their views. This is perhaps to be expected as their job demands of them to be able to use discourse to advise, inform and motivate their clients.

Insert table 3 approximately here

The interviews were tape-recorded, with two exceptions (due to technical difficulties), and fully transcribed. Farm visits were also tape-recorded and transcriptions were made. In addition, GN documents, and some reports of farm visits by interviewed consultants, were compared with the interview transcripts to assess and verify the discourse. After having participated in the farm visits we felt more confident that there was little difference between talk in the interviews and talk during the visits. Interviews with GN personnel, as part of a related research project preceding the study presented in this article, was used as background material.

The analysis was performed in two steps (A1 and A2). First, interview transcripts were coded by one of the authors for the four elements described by Dryzek (1997). These were then compared to the transcripts from the farm visits. As it is difficult to clearly demarcate between the elements, e.g., an interview quote will typically both mention an entity and its relation to other entities (E1 & E2), a quote could belong to several elements at the same time. Furthermore, discourse is not without fuzzy edges and somewhat dissenting voices, but the main difference within the collective of consultants, as understood from our data, was the amount of arguments and reflections provided. In particular, those consultants that had performed substantially more farm visits (see table 2) had richer descriptions and examples than those with less experience. Providing more room for the former is justified by the fact that these are the ones that provide most advice to farmers. Hence, their voices matter more to the feasibility of climate advice than those who rarely provide the service. Moreover, in determining what to include in each element, we carefully compared transcripts and established tables over quotes mentioning particular ideas and concepts, finally arriving at a picture of the common denominators of the discourse.

The second analytical step, A2, was more interpretative. We went beyond the elements, drawing on the results of A1, to find implications of discourse in terms of change orientation. This interpretation was not “theory-free”, but informed by our understanding of GHG reduction as an urgent problem. These interpretations are attempts to get at the question of what change orientation that climate mitigation is likely to take – i.e., the feasibility of this particular instrument to address climate change.

Analysis

A1: Elements of discourse

E1 Basic entities recognized or constructed: Consultants' discourse organizes around four basic concepts that describe recognized aspects of the farms they work with: environment, production, (farm) economy and AE intervention. Of course, many other entities are mentioned, e.g., farmers, scientists, animals, soils, crops, biological processes, etcetera – but these were identified as the dominant conceptualizations.

Climate change is talked about as a new aspect of the environment entity. It introduces new types of emission sources as well as pollutants – e.g., methane from life stock, CO₂ from organogenic soils and N₂O from fertilizers (see for instance IPCC, 2007; FAO, 2006; Swedish Board of Agriculture, 2008; 2010).

This introduces a new vocabulary, to get the farmer to see the whole picture, when we recalculate to CO₂e [carbon dioxide equivalents]: what arises at the farm in the shape of greenhouse gases. And that is quite a lot of new things both for the consultants and the farmer to think about – what is really happening in the soil and in the animals? And that it affects the whole globe (CC).

As the above quote illustrates, the most substantial GHG emissions are recognized as occurring because of natural biological processes, e.g., the way the animals' digestion works, bacterial processes in soils or particulars of (organogenic) soils. Therefore, agriculture without emissions is recognized as impossible.

So we have to accept that there are emissions. It is unavoidable that we get these emissions. The task is to limit them; that we can produce with as little emissions as possible (CC).

My understanding is that there is not a lot that can be changed, but of course there are things that each individual farm and farmer can influence, on his own farm - of course there are, but there is much that we cannot influence (MW).

Second, the production entity refers to the production system at the farm, with a distinction between dairy farmers, crop cultivators and beef farmers. In the talk, production is taken as given, i.e., it is not recognized as the consultants' role to criticize a particular type of production that carries large GHG emissions. This occurs against the backdrop of a Swedish media debate regarding the climate aspects of meat and dairy production.

You cannot criticize the production in any way but rather [have to] see its possibilities (ED).

Thirdly, the farm's economy is referred to by talk regarding profitability and costs, e.g., of inputs such as fertilizers, but also as prices of produce or land, or through the pressure from international competition or lenders, i.e., banks.

But today it is like this eh – just the last ten years, price of land has increased tenfold. And, along with that, the level of debts in the [farming] companies. And if a wrong decision earlier meant that I had to change tractor next year, today it means that I am unable to repay my loans (CÅ).

The intervention entity, finally, describes possible changes to the production system that a consultant suggests to a farmer. Interventions represent modifications rather than switches to other types of production.

What interventions are there that they could implement, and how much do those interventions affect? Often we think about fuel consumption but that is really a small issue in agriculture, so there are many other things that might have greater effects (MiB).

Interventions that were discussed include the purchasing of another type of fodder for livestock, eco-driving, composition of animal diets, or how fields are cultivated.

E2 Relationships between entities: In the relationships between the entities, there is a hierarchy where the farm's economy and production are prioritized over the environment:

Yes. It is about economy in the end. Unequivocally really. So it is about finding those opportunities for improvement, or point at what they are already doing, already are improving; what the climate impacts of those are (MB).

I don't believe in moralizing. That does not work. You have to have specific solutions for the specific farm because the farmer is under so much pressure that he has no time to sit down for a few hours and listen to me talk about how he is going to save the world. That won't work (CÅ).

Yes, I have been to a farm where they thought that [my advice] put too much focus on the environment. Where they thought that... they cannot save the world and all that (AE).

The link between environment, production and farm profitability is established by presenting efficiency gains as environmental improvements.

So, the purpose is to some extent to get the farmer to pursue his production as efficiently as possible. That reduces the impact on climate (KB).

Yes and I think that it is pretty simple, because often this [the intervention] goes hand in hand with the economy. If you look at the [cattle] diet, it is about producing as much milk as possible with the best based diet as possible, and that is good for everybody, all things considered. So in that aspect, it is easy to come up with advices and to motivate advices (CP).

A win-win situation is recognized, in which interventions are constructed as having environmental, production-related as well as financial benefits.

Luckily, that which we have to do to reduce environmental effects goes hand in hand with increased profitability and better production (CC).

Different arguments are used to underpin this relationship, e.g., that emissions are recognized as waste or that they represent mismanagement of inputs such as fertilizers, fodder or fuels. Alternatively, since emissions are unavoidable given their biological nature, increased efficiency, e.g., more meat and milk per animal, will reduce relative emissions.

[...] the organogenic soils would emit [GHGs] even if we hadn't cultivated them, and cows would have emitted even if we hadn't milked them – but sure, if we would have had fewer cows, then it would have decreased. Same thing there, the more you produce, the better it is, in most cases, if you break it down to each unit of beef or milk (CP).

E3 Agents and their motives: The central actor in consultants' discourse is the farmer. Other possible stakeholders, coming generations and poor people in less resilient societies, are never explicitly mentioned. Nevertheless, one appearing theme is the farmers' feelings of being accused as "climate villains", which obviously gives an indirect link to "others", both as victims and as claimants. Consultants explain this by farmers' lack of knowledge: as farmers do not understand what climate change means in the agricultural context, they perceive the whole discussion as a threat.

Many get the impression from media that we should not have any food production in Sweden at all, but it is not better anywhere else and we have to eat so... The understanding is perhaps a bit wrong so there are many [farmers] that say that this with climate, it is about us not existing (CP).

No, they do not understand the underpinning relationships. They have been told that they are "climatically disgusting" – [that] Swedish meat, Swedish beef is a key culprit and they do not understand the contingencies behind this. What it is that makes people think that the climate impact from Swedish beef production is that large... And how it compares to other countries, they do not know that either (ED).

As disclosed above, economic results are perceived as superior for farmers, and this is linked to another theme, the severe economic pressure that most consultants see the farmers as being under. However, a few consultants think that the economical state is more ambiguous.

But it is like with any people you talk to. Some sound like they have a great lack of money, but still they are renovating their houses and going to Thailand for 14 days. Then you think that they aren't under economic pressure. It is the same with farmers – those that talk the most about it... they can be pretty well off. Of course, many have big loans. They've built new stables etcetera. Of course they cannot stand any major [economical shocks] but they have such turnover that I imagine they can always float on that to some extent (IL).

It is hard for farmers and there I come and threaten them with climate taxes which they of course don't like (BN).

But where I am working at the moment, there are a lot of beef producers and they don't make ends meet really. And that kind of brings an identity crisis. What am I really working with? I am not making any money and then I do not really have a job. But they are working their asses off for hours, still (ED).

E4 Key metaphors and rhetoric devices: While metaphors are often used to strengthen the environmental side of an issue (climate friendly, villain, etcetera) the use of rhetorics is targeted towards two different tasks. First, it is used to persuade farmers to partake in provision of advice, i.e. to perceive its value. In this category, we find statements that hint at the threat of regulation. One example is the reoccurring reference to Denmark – in which fertilizer use is heavily regulated.

Because if we can solve this voluntarily, as they have done with GN, then we can claim that they do not have to create laws that they have done in other countries. E.g., in Denmark, they have what they call "fertilizer accounts" and Holland is also more about legislation (CC).

But also, there are ample examples of how suggested interventions are monetized and linked to the profitability of the farm; statements that may contain rhetorical but also fundamentally financial dimensions:

A simple approach there is to put dollars and cents on emissions...(CÅ).

Second, rhetoric is used to turn farmers' perceived sense of being accused, reactive, almost depressed, into a proactive positive attitude. This might be described as a therapeutic approach.

You have to be something of a psychologist in this. It is really important to show that "we need the food products, both milk and meat and grain and all of it and it is about producing it in the best possible manner" (CC).

You cannot raise your fists and argue that "you must" or "you shall", "you have to", you have to offer them some kind of a way out (BN).

In this category, consultants' anchor their statements in mainstream economic discourse (Armour, 1997), e.g., stating that consumers are the key agents:

But it is also – you have to discuss more like: “we do actually want to eat beef and drink milk, so these emissions have to exist.” So they should not take it personally, that they are the worse villains. It just is like it has to be (MiB).

Another part of the rhetoric is that other activities are worse:

Then you have to put it [agricultural emissions] in relation to how much a person emits or how much a trip to Thailand really contributes. It is a lot about the relation to other [emissions], in relation to the value that it creates, I think. Linked to these emissions, we have a cattle production and animal husbandry that keeps our countryside open and active (KE).

Perhaps the major “trick” here is to compare with international production, e.g., for milk or meat, where Swedish farmers come out good in terms of emissions per unit of produce, based on Life Cycle Assessments (LCAs).

So there are a lot of numbers and much to follow through on. And if we compare ourselves to other countries, Swedish producers are good (CC).

The trick is not to be too negative. You cannot be negative about the production at the farm visit. Rather it is about seeing – trying to show the opportunities and then convey that in an international perspective, this beef comes out pretty good, but things can always be improved (ED).

Thus, by assuring farmers that efficiency is the way forward – and that Swedish farmers are, in a global perspective, already highly efficient – the negativity brought up by the climate change issue can be turned into something positive. Farmers that are receiving advice come to understand that the work and improvements they are already doing is good for the climate. In addition, the future will bring demand for climate friendly agricultural produce.

And then we arrive with another requirement saying: “I know that your finances are crap here but I think that you should think a little about the environment anyway.” That’s not the best approach. Instead we have to try and encourage and coach them for the future: “we are going to increase [global] population with an extreme amount and I think that you should be part of that race” (CÅ).

They haven’t understood that the more rotation you have in your production – the faster animals are ready for slaughter, the more milk cows produce – the better it is. Perhaps not always, but often for a beef farmer. They haven’t understood that. And when they understand, their interest is awakened. Because these are things that they can be appreciated for (ED).

The key message is to stay on the road towards increased efficiency – where some farmers have gotten further than others.

A2: Linking discourse and climate change mitigation

In A2, we go beyond the analytics suggested by Dryzek (1997), looking at how climate mitigation is constructed within the discourse. We find efficiency as the major approach. For instance, emissions per unit of produce are emphasized rather than total or per capita emissions. Moreover, efficiency is seen as the unifying link between described entities, resolving potential conflicts and introducing win-win-situations. The only perceived, but discarded, alternative is to reduce production. From this follows that an increase in emissions could actually be good since producers are relatively efficient. As farmers have many arguments for keeping up their efforts at improving efficiency, climate change mitigation simply adds to this, and the climate issue becomes a reminder rather than a threat.

Provision of climate advice also brings another approach which is not really about changing agricultural practice, but since Swedish meat and milk production already is relatively efficient (with LCA support), this approach is about changing how farmers feel about their

production and present it to outsiders. Relabeling could thus be part of both political (aimed at outsiders) and therapeutical strategies (aimed towards the farmer himself). This relates to a sense of alienation from society, due to “its increasing environmental demands” (Morris, 2006, p. 125). The two approaches, and their links to the elements described in A1, are described in table 4:

Insert table 4 approximately here

To discuss the feasibility of climate advice, one might ask two things: is it a proper means to promote production efficiency, and is this a valid approach to climate mitigation? Regarding the first, consultancy does not primarily offer new tips; it is about the classic issues of optimization (fertilizing, feeding, cultivation etcetera), part of agricultural extension for years. Hence, it promotes efficiency, but in the case we studied, advice did not emphasize new techniques or practices, why it appears as a less valid instrument for capacity building. However, capacity might have been influenced in another sense: The main contribution might be that of therapy – reducing negative feelings among certain farmers, as “society”, through media, appears to be criticizing them as guilty of climate change (cf. Morris, 2006). Otherwise, such feelings might hamper efforts and enthusiasm about improving farming, trying new technologies, investing for the future, etcetera. One could argue that if this “drive” is hampered, farmers cannot stay on the track towards increased efficiency. Thus, provision of advice might provide important contributions in this respect.

The second question addresses the overall relevance of eco-efficiency, as dominant industrial approach to sustainability (Frye-Levine, 2012; Kallio *et al.*, 2007; Orsato and Clegg, 2005). Clearly, this approach has the important pitfall of not recognizing total emissions; it does not matter if food is produced more efficiently if total emissions are not reduced (cf. Orsato and Clegg, 2005; York and Rosa, 2003). The AE activity of our study did not prove itself able to break out of this dominant efficiency narrative. It rather indicates that participatory measures must be coupled with other measures.

Discussion

We started out by suggesting that sector level climate mitigation policy might be an alternative when global efforts fail. However, the analysis of local discourse rather reveals an approach to change that could contradict efforts to reduce sector level emissions in absolute terms, as the idea that efficient Swedish producers are already climate friendly is put forth. It may thus fuel ground level resistance against mitigation efforts and reductions in general. Moreover, the interests of the Swedish farmer become salient as consultants take it upon themselves to voice farmers’ concerns.

This outcome could be interpreted as an effect of the embedding of discourse within a particular practice (Hajer and Versteeg, 2006). Sutherland *et al.* (2013) found, in their study

of the links between the institutional settings of extension services and trust, that consultants whose advice should represent government policy or the environment are less likely to be trusted by prospective clients and subsequently have a harder time getting assignments. To make up for this, they are likely to display a strong “pro-farmer”-attitude (Morgan and Murdoch, 2000). The award for this would be increased business in terms of extension hours, etcetera. This appears to be partly verified by our findings, in the way that consultants are refraining from criticizing production, but, some differences may exist between consultants. While larger organizations (see Table 2) provide a wide range of services, small companies rely more upon provision of GN extension and may be more dependent upon being selected for this type of extension. Hence, while the tendency to avoid criticizing farmers and production systems appear general, reasons may differ.

Other studies have also shown that advice that are given do not optimize environmental gains (Butler *et al.*, 2010; Davey *et al.*, 2010). For instance, solutions for bird-protection are chosen that let production continue undisturbed on arable land (Butler *et al.*, 2010; Burton *et al.*, 2008). This brings problems for provision of advice as a means for sector level mitigation policy. Advisors are, for instance, unlikely to advocate restrained cultivation of organogenic soils despite large emissions, because farmers see no gains from this and the consultant risks to be perceived as unrealistic by farmers, and hence less trustworthy. However, some mitigation options advanced by the IPCC, e.g., better tillage and nutrient use, are clearly promotable through advice (Smith *et al.* 2007).

A related danger is that climate mitigation is mainly discussed in relation to the legitimacy of Swedish agriculture. Climate change is reduced from a problem affecting many stakeholders distant in time and space, to a problem of farmers feeling accused by media, but being able to respond by promoting their efficiency (cf. Morris, 2006). By utilizing suitable international comparisons, mitigation becomes a concern for consumers, and for producers in other countries. This distributes arguments and discourse for resisting mitigation in the sector, which may have wider political consequences, as grass root resistance against more forceful reduction is fueled.

Although it is mainly an information based approach (Taylor *et al.* 2012), the provision of advice may build capacity, not least through dissemination of research findings, but, as such, the AE under study seems less forceful as most advice appears already well-known. On the other hand, its therapeutical aspects may be important for raising and maintaining capacity for continuous eco-efficiency improvements. However, efforts towards addressing the concerns regarding relabeling are needed if climate advice through AE-services should be considered as a feasible way to reduce GHG emissions. One way might be to use other instruments to create incentives for practices otherwise perceived as financially unwise, e.g., concerning organogenic soils (Smith *et al.*, 2007). Hence, advice might be strengthened in the CAP context, if other policy was created to support it. In addition, setting clear reduction targets may provide a way forward in two ways. First, targets make it possible to evaluate performances against something (Stål *et al.*, 2013). Here, AE, through its collecting of information regarding GHG emissions from farms, could constitute a tool for setting strict targets for the sector. Evaluations possibly introduce a range of consequences that could

counteract inertia in reducing GHG emissions. For instance, adverse performances could provide arguments for statutory regulation, which in turn might provide consultants with more of “a stick” in relation to farmers. Hence, this could reduce the pressure of showing a “pro-farmer” attitude. It may also spur more efforts from policy makers to facilitate and support the work of extension consultants as their efforts are recognized as important for reaching politically vested targets.

Second, setting clear reduction targets could be done in a broader political process where more stakeholders are allowed to participate, e.g., environmental groups. This might introduce different perspectives upon climate mitigation, not just the orientation towards efficiency currently dominating (Orsato and Clegg, 2005; Hopwood *et al.*, 2005). In turn, conflicts of interests and world views between different groups may be exposed and diffuse a more diverse and reflexive discourse (Bonnedahl and Eriksson, 2011). There is a danger in equating climate mitigation with efficiency improvements as it blocks out alternative ideas and pathways stipulating more fundamental, but necessary, changes in overarching systems of consumption and production (York and Rosa, 2003; Næss and Høyer, 2009). Broader stakeholder engagement could subsequently curb some of the interests that have been, and continue to be, allowed to affect mitigation (Bonnedahl and Eriksson, 2011).

Limitations and implications for future research

There are obviously limitations to the claims that can be made from this single explorative case study. Nevertheless, transferability could be discussed and is dependent on similarities and differences between cases (Yin, 2005). Our findings may be of primary interest to research in European policy contexts, where climate mitigation advice is provided through AE services. Here, attempts to transfer results need to pay attention to factors such as institutional settings, the way GN is organized, relationships between farmers and authorities, attitudes towards climate change among farmers and related policy. Sweden could be considered as somewhat special, as providers of extension services are less diversified than in, e.g., UK (Sutherland *et al.*, 2013). Despite this, some indications could be found for how climate mitigation would work in a different AE-context. European farmers share similarities, e.g., have experienced a similar shift in policies; from a productivist-paradigm to that of environmentalism/multi-functional farming (Ingram, 2008; Morgan and Murdoch, 2000). Hence, if climate mitigation was adopted within European extension practice, one might expect to find similar tensions between environmental motives and farmer interests. However, we need more research comparing climate mitigation through AE-services throughout Europe, in particular given the relative weight of agricultural GHG emissions (Foley *et al.*, 2011).

Transferring the findings to research regarding environmental governance as a mode of regulation is potentially more difficult. Environmental governance covers both a broad range of policy instruments and a range of actors subject to regulation (Jordan *et al.*, 2005). From a single case study we cannot claim that this type of discourse is likely to permeate other NEPIs. On the other hand, some discursive resemblances might be found, particularly in governance systems where those involved in implementation are dependent upon regulation

subjects as “clients”. References to win-win, efficiency, and comparisons with other countries are likely to be common in such governance settings as well. Our findings could be interpreted as an example of how, in a process without clear political goals, where there are client-provider-dependencies, those subject to regulation come to influence not only means but also ends. It points to pitfalls of NEPIs that entail unclear, or lack of, ends, making it difficult to evaluate policy. Here, more research is needed focusing on the interplay between discourse, configuration of means/ends (within the NEPI) and types of relationships between involved actors.

Moreover, there are limitations as to our conclusions regarding the sources of the local discourse. Possibly other factors, as well as other discursive sources, are likely to explain its content. In particular, there are clear influences from ecological modernization themes and arguments, e.g., win-win and eco-efficiency (Mol and Spaargaren, 2000). These limitations are of course hard to get around as it is impossible to trace all discursive elements that respondents utilize. However, our purpose was not to explain the origin of discourse, but rather to explore it in order to understand the feasibility of provision of advice. Our findings show that exploring discourse provides an additional way of understanding NEPIs, e.g., as ends are difficult to understand without this analysis. This constitutes a contribution to research on environmental governance.

Conclusion

Our conclusion is that provision of climate advice, as an example of a NEPI, is likely to generate an industry-oriented discourse that might affect both ends and means of the instrument. In terms of motivation and capacity of the regulated (Gouldson *et al.*, 2008), the main contribution might be therapeutical rather than a support for change, which might be important but still inadequate in the face of the challenge that climate change poses. The risk of regulatory capture is clearly imminent and needs to be balanced with clear goals, other policy instruments and processes that allow broader stakeholder involvement, including, e.g., environmental groups. This would introduce alternative discourses framing GHG mitigation in other ways. For global mitigation, it is of course a problem if sectors decide that they are “too efficient” to have to care about setting reduction targets. Subsequently, rather than providing an alternative to global paths, sector level mitigation projects might actually fuel resistance and arm those that are not interested in seeing reduction with discourse against strong national or sectorial targets. Hence, policy makers need to be aware of the discursive dimensions of policy instruments in-use, and commitment to climate change mitigation on national or regional (e.g. EU) levels cannot depend on industry oriented voluntary measures.

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Table 1: Swedish farming

Production system	No of companies	Average land holding*	Average annual turnover**	Average value of production***	Average result****
Crop cultivators	19 000	61 ha	1867 000	1081 600	467 100
Dairy farming	5 000	110 ha	710 500	388 000	420 000
Beef farming	11 375	48 ha	559 200	231 200	134 200

*Figures are for 2010 (Swedish Board of Agriculture, 2012).

** Figures show average annual income in SEK for 2011, including financial supports (Statistics Sweden, 2013).

***Figures for 2011, includes income in SEK from animals and crops but not direct financial supports (Statistics Sweden, 2013).

****Figures for 2011, show results in SEK before salary and profits (Statistics Sweden, 2013).

Table 2: Data collection

Data collection “Climate advice”				
Topic	Type of respondent	Organisation	Type	Respondents*
Background	GN personnel; consultant	Swedish Board of Agriculture (SBA); Federation of Swedish Farmers (LRF); Växa Halland	Meeting	AH, SO (SBA), JK (LRF), CC (Växa Halland)
Climate advice	Consultants	Small companies**	Phone + meeting	CÅ (>100), ED (~40), BN (~70)
Climate advice	Consultants	Large companies**	Phone + meeting	IL (2), KE (5), MB (n/a), MW (4), MiB (n/a), SR (4), CP (~12), EH(3), KB(2), MD(1), CaP(~15), CH(n/a), PN(~15), JH(~20)
Climate advice	Farmers	Lilla Edet; Långelycke; Fillinge; COGO AB; GM Farming AB	Observation	M, MA, A & B, CO, GM
Climate advice	Consultant + farmers	Small company; ~10 farmers	Observation	CÅ (small company), ~10 farmers

*Number of consultations are shown in the parenthesis.

** The companies that consultants belong to are divided into small and large, where small ones are owned and operated by the consultant.

Table 3: Interview questions

How many climate consultations have you performed?
What do you see as the purpose of the climate consultation?
Is the purpose to come up with advice that farmers can implement to mitigate their climate impacts?
What knowledge do you think that farmers have regarding agriculture's climate impact, e.g., how large it is, what the emission sources are?
What knowledge do you think that farmers have regarding how they can reduce their emissions?
Are you trying to motivate farmers to change their behavior in some way, and in that case, how?
Could you describe the relationship between you as a consultant and the farmer?
What other stakeholders do you recognize as important regarding this matter?
Is it important to appear credible towards the farmer and how do you do to appear credible?
How does the provision of advice take place? Describe what happens during a farm visit!
Do farmers have their own thoughts/reflections regarding climate change, e.g., what should be done in society or regarding the nature of the problem itself?
Do you think that the farmers themselves have noticed climate change?
Do questions and discussions arise during consultations, and if that is the case, what are these?
What do you hope will happen on the farm after the visit?
What types of results to you think that the consultation yields?

Table 4: Approach to change

Approach to change:	Description	Link to elements	Quotes
Efficiency – not changing what is done but how it is done	Production at the farm is taken as given but can always become more efficient.	E1: Emissions unavoidable due to, e.g., biological processes (main entity: Environment). E2: Win-win situation E3: Economic pressure E4: Monetizing emissions	You cannot criticize the production in any way but rather (have to) see its possibilities (ED).
Relabel – not changing what is done but how it is described	Since Swedish farmers are highly efficient, they are already engaged in climate friendly production and there is no need to feel accused or depressed regarding the issue.	E1: Emissions are unavoidable E2: Efficiency is the way E3: Feel accused E4: Already highly efficient compared to international competitors	So it is about finding those opportunities for improvement – or point at what they are already doing – already are improving – what the climate impacts of that are (MB).