

Towards a British Ecosystem Services Policy

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Abstract

Brexit requires the UK government to develop its own policy for the governance of rural land. This policy should adopt an ecosystems approach to be better targeted, integrated, collaborative and devolved. A British Ecosystem Services Policy would support delivery of a full range of ESs to be provided by both landholders and other organisations and individuals who can contribute effectively. It would be implemented by developing Payment for Ecosystem Services (PES) schemes where feasible but also through a series of procurement funds administered at national and local levels. Landholders and others could tender to deliver services, potentially assembling a portfolio of service provisions. Funds would monitor the outcomes, costs revealed through tendering and the effectiveness of alternative delivery methods in order to feedback into future arrangements. However, at this stage we lack governance structures for full implementation. Initially, policy can support an extended agri-environment programme, doing more to promote collective initiatives, PES and devolved decision-making, while reducing some levels of direct policy payments. While a full BESP is a longer term goal, it is critical to embark in this direction in order to avoid path dependency trapping policy into a direct substitute for a flawed CAP

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A new policy for rural land

Brexit requires the United Kingdom to develop its own policy towards agriculture and rural land to replace the Common Agricultural Policy (CAP). This should recognise the multiple benefits and costs associated with rural land use and promote the integrated management of rural land in the long term public interest through a British Ecosystem Services Policy (BESP).

Over the past forty three years, agriculture in the UK has been subject to the guidance and control of the CAP. As it has lurched from crisis to crisis, it has evolved from a policy focussed primarily on securing European food security by means of intervention in agricultural commodity markets towards a broader-based, more nationally differentiated policy concerned primarily with the support of farm incomes and the environment. But this process has failed to go far enough. Brexit offers a unique opportunity to design a new approach that aligns more closely with UK objectives and context.

This paper outlines an alternative policy for rural land governance in the UK drawing on an ecosystems approach. After noting the criticisms made of the CAP by the UK government, the rationale is elaborated for a policy based on ecosystem services (ES). We then sketch out how such a policy might operate and the various elements that would be involved. It will take time to develop the institutional arrangements that would be needed to fully implement such an approach and so a more immediate requirement is to set out a direction that can be taken as the UK leaves the EU. Finally, we note some of the challenges that would be faced in embarking in this direction and draw some conclusions.

The UK approach to CAP reform

The UK government has been consistently critical of the CAP, promoting a vision of a more economically liberal policy (HM Treasury and Defra, 2005) targeted primarily on the delivery of public goods. In response, the House of Commons Environment, Food and Rural Affairs Committee (2007) commented “The only long-term justification for future expenditure of taxpayer’s money in the agricultural sector is the provision of public benefits”. More recently, the Department for Environment, Food and Rural Affairs (Defra, 2013a) commented on the result of the 2013 CAP negotiations “The outcome of negotiations did not move the CAP anything like as far as the UK wanted in the direction of reform. From a UK perspective, the CAP should be about helping the EU agriculture sector to become more competitive and market-oriented whilst providing environmental public goods that the market does not reward.” And in 2016, the House of Lords European Union Committee (2016) argued that the European Commission should “consider restructuring the CAP based mainly around the provision of public goods, potentially removing the distinction between the two pillars ...”.

The UK position has always been some way from the centre of EU agricultural policy perspectives. British farms are generally larger, an urbanised population is more concerned with rural amenity,

wildlife and public access than it is with the agricultural economy, and the British orientation towards international agricultural trade is more open. While the CAP has been through a sequence of substantial reforms and there is much less intervention in commodity markets (Daugbjerg and Swinbank, 2016), particularly in the incorporation of environmental aspects (Matthews, 2013), it remains, at its core, an agricultural policy. And this was, if anything, reinforced in the most recent round of CAP reforms in 2013. Efforts were made to shift the direction of CAP towards a greater focus on the provision of public goods through targeted programme spending under Pillar 2 (Cooper et al., 2009). But the farming interests in the European Union prevented any radical change. Erjavec and Erjavec (2015) have argued that while a publicly popular environmental discourse was used in the justification for the CAP, there was a strong productivist discourse at the level of measures and budgetary distribution. The continuing agricultural orientation of the CAP is illustrated by the titles of the two funds that finance the policy: the 'European Agricultural Guarantee Fund' and the 'European Agricultural Fund for Rural Development'. The 2013 reforms reasserted the need to provide funding exclusively to farmers, so that only 'active farmers' are eligible for payments under the Basic Payments Scheme and direct payments continue to be paid to farmers for rather uncertain reasons (Tangemann, 2012). The requirements introduced in the 2013 reforms for 'Greening' are seen as ineffectual (Pe'er et al., 2014). A JRC (2015) analysis of crop diversification under greening concluded that less than 0.5% of the total agricultural area in the EU was reallocated due to the measure. Rural Development funds are paid for conservation land management and development in rural areas, but still, overwhelmingly, through the land management activities and businesses of farmers rather than through rural communities more broadly.

The rationale for local governance of ecosystems

Rural land use has major impacts well beyond the agricultural sector, but the impacts are commonly the responsibility of government departments other than Defra, which takes responsibility for agricultural policy. Consequently responses to these impacts are not well integrated. Agricultural change is often regarded as the primary cause in the decline in wildlife in Britain. A recent State of Nature Report (Hayhow, et al., 2016) concluded that "Many factors have resulted in changes to the UK's wildlife over recent decades, but policy-driven agricultural change was by far the most significant driver". Wildlife conservation is an area of responsibility of Natural England. Agricultural land management directly affects water quality and rates of run off that exacerbate flood risks. Water quality and flood prevention are the responsibility of the Environment Agency. The Government has a target for the expansion of forestry, which is under the remit of the Forestry Commission (Defra, 2013b). The control of development in rural areas and the protection of hedgerows is a responsibility of local authorities. These various processes and interests interact in complex and different ways within particular localities. Thus separate policies for individual impacts are unable to take account of the conflicts and complementarities amongst them. And a centralised implementation agency lacks information on the trade-offs and costs facing individual landholders in making changes to land uses. Rather, local trade-offs and

solutions have to be worked out against local interests and local priorities. Of course, there are national priorities and red lines that will constrain and influence the decision making domain of local decision makers; national interests will need to share influence alongside local stakeholders.

The benefits arising from the natural environment are increasingly framed in terms of ESs (Millennium Ecosystem Assessment, 2005; UKNEA, 2011) although aspects of the approach remain controversial (Schröter et al., 2014). An ecosystem approach starts from a recognition that these different social costs and benefits derive from a common source within particular localities. The approach is defined under the Convention on Biological Diversity¹ as “a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way”. Bateman et al. (2013) have illustrated how taking non-market ES values of land uses into account substantially increases the potential values generated by rural land.

The services and disservices that arise within ecosystems are highly interrelated, particularly through the use and management of rural land. And that the management of the ‘ecosystem’ can recognise these interrelationships (Austin et al., 2016). Agriculture itself is a provider of ecosystems services, particularly of provisioning services in the form of marketed commodities. It can be seen as both enhancing ESs (Zhang et al., 2007; Power, 2010) such as in the maintenance of valued landscapes or valued habitats and diminishing them, such as through reductions in water quality or emissions of greenhouse gases.

Arguably a policy for the provision of public goods, as has been widely advocated, does not go far enough. The idea of public goods uses a metaphor of the market. The non-rival and non-excludable characteristics of public goods raise the transactions costs preventing the emergence of a private market requiring government intervention or institutional change to make up for the missing market. But this implies that there is an identifiable product for which a market can be conceived, i.e. where there is a ‘missing’ market. This is the case for a range of ESs, most obviously for Provisioning Services, such as fresh water. Cultural Services, particularly recreational such as public access, may be seen as providing benefits directly to identifiable groups of people. It can often be possible to identify benefits of Regulating Services through models of pollination, flood protection or climate mitigation. The greatest challenge lies in identifying benefits that arise from Supporting Services, such as nutrient cycling or from the presence of biodiversity. Many processes, interactions and consequences within ecosystems are unknown and possibly unknowable. Given incomplete information and complexity, we cannot know the full value of all processes within ecosystems and so cannot design markets or explicit policies to ensure their maintenance or delivery. A natural capital approach that aims to maintain the total stock of natural capital in the environment is more likely to promote sustainable management of natural resources, although even this, given the level of uncertainty, should be implemented with some degree of precaution. This suggests the merits of an approach towards ecosystem governance

¹ <https://www.cbd.int/ecosystem/> (accessed 24 March 2017)

that is based on promoting resilience as an objective rather than efforts to maximise the social value of the stream of benefits *that can be identified* as arising from ecosystems.

In this context governance should be adaptive and applied at a landscape or catchment scale. The interrelationships and feedbacks amongst ecosystem functions and values of the services are imperfectly understood. Ecosystem management involves trade-offs with different actions benefiting different taxa and ecosystem functions, and actions can take decades to become effective (Oliver et al., 2015). Outcomes are vulnerable to unpredictable changes in external factors and so the consequences of ecosystem interventions cannot be predicted with certainty. It is thus argued that sustainable management should be adaptive and focus on building the resilience of the system (Scheffer et al., 2001). Adaptive management (Westgate et al., 2013) recognises this context and argues that management cannot set clear objectives but rather operates on an iterative basis, seeing interventions as experiments to generate information to feed back into future decisions. The aim of ecosystem management may thus be to build the resilience of the system against unknown future shocks, such as through the maintenance of functional redundancy to underpin service provision, rather than to seek to achieve a predetermined output.

Further, the system being managed is not simply the 'natural' environment but rather is a complex mix of natural environment and human factors combined together in a social-ecological system (SES) (Folke et al., 2005). Taken together this indicates a role for the adaptive governance of social-ecological complexity (Hodge, 2007; Armitage et al., 2008) defined as 'a process by which institutional arrangements and ecological knowledge are tested and revised in a dynamic, ongoing, self-organized process of learning-by-doing' (Olsson et al., 2004 p.45).

The critical question concerns the appropriate governance arrangements that can deliver the required management processes. Lubell (2015 p. 44) has argued that determining "which institutional structures work best in different situations is one of the most important unresolved questions in the policy sciences". This is the fundamental issue to be addressed in the development of a British Ecosystem Services Policy

A policy for ESs

A British Ecosystem Services Policy (BESP) would start from the aim of securing the long term social value that is delivered from ecosystems in the UK. The policy would adopt a territorial rather than a sectoral perspective. Policy would be more decentralised, implemented with regard to the governance of ecosystems within particular localities.

Of course, agriculture would continue to be a key focus for a BESP. Domestic agricultural production is critical as a major source of income, as an input into the food sector, as a factor promoting food security. Recent concerns have re-emphasised the importance of production, especially in response to longer term concerns about the capacity of global food supply to meet rising demand (Godfray et al., 2010). This is reflected in the shift towards sustainable

intensification (Garnett et al., 2013; Rockström et al., 2017). Government has a key role to play in supporting research and development and in the dissemination of information and innovation. It also needs to maintain its regulatory and supporting roles in respect of risk in farming, livestock and plant disease, human health and safety, animal welfare, food standards and the food supply chain. These aspects of policy are not discussed further here.

The management of land is key to the management of ecosystems and farmers manage three quarters of the land in the UK. Agricultural management is critical to the quality of the rural environment. What is valued in the British rural environment is largely a product of agricultural land uses and practices (Hodge, 2000), even though at the same time agricultural practices, as indicated above, can be a primary source of damage. Influencing agricultural land management will thus continue to be a core concern such that a major part of BESP expenditure will be directed to farmers in support of socially valued land uses.

But BESP challenges farmers' automatic entitlement to direct payment. Rather it should encourage land managers to search for the ways in which their land can provide value. For the majority of farmers and farm income, this will be through the production and sale of marketed commodities. However, alongside this, BESP will offer payment for the delivery of public goods and the promotion of resilient ecosystems. This would include direct payments to farmers in order to maintain agricultural management of the land where this generates net public benefit and is not profitable under ruling market institutions and prices. In the longer term this would be complemented with and potentially substituted by a system of payments for ESs from a wider array of beneficiaries.

However, in principle there is no particular requirement for payments to be made directly to farmers or even landholders. Rather payments should be directed to individuals or organisations that have the capacity to contribute effectively to the delivery of the ESs that are valued by society. As well as landholders, this would include conservation trusts, collective organisations representing ES buyers and sellers and intermediary organisations whose work can facilitate the delivery or enhance the quality and value of ES.

The framework for a BESP

A BESP needs to be located within a clear policy framework. The Natural Capital Committee (2017 pp 11-12) has recently commented:

“Governance arrangements for, and property rights over, many natural assets are currently unclear. As a result, responsibilities for delivering particular benefits or stewardship of specified natural assets, such as species, habitats or water, are divided between multiple organisations at both the local and the national level, with no clear overarching accountability. An even greater number of people and organisations stand to benefit from improvements in natural capital but are not routinely included in decisions that affect it. This division of interests, tasking and commissioning means that integrated decision making can be difficult, and that overall decision making on the environment tends to be sub-optimal.”

Policy analysis demands a clear property rights and a clear counterfactual. It is often asserted that 'agriculture' provides arrange of ES. Power (2010), for example, comments "Regulating services from agriculture may include flood control, water quality control, carbon storage and climate regulation through greenhouse gas emissions, disease regulation, and waste treatment (e.g. nutrients, pesticides)." But in each case, a question arises as to what is the counterfactual? With water quality for instance, it is necessary to consider what condition the ES would be in in the absence of agriculture. It seems hard to argue that in almost any context water quality could be higher if no agriculture was undertaken. Rather there is an implicit judgement about the reference level (Hodge, 2016), the level of environmental quality and associated property rights that defines the rights and duties of the property owner. This differentiates between circumstances where the polluter pays principle applies against those where the provider gets principle applies. In this case, the implication is that landowners have a right to reduce water quality and so may be regarded as providing a service if the quality is raised above that level. Equivalent arguments apply to flood control or greenhouse gas emissions. It is necessary to establish explicit standards against which delivery of ES can be judged.

The elements of a BESP

Payment for Ecosystem Services

There would be a number of elements to a BESP. An obvious start would be with the development of Payment for Ecosystem Services (PES) schemes. PES can be defined formally as a voluntary transaction where a well defined environmental service is 'bought' by a buyer from a service provider if the service is provided (Engel et al., 2008), although in practice there is arrange of institutional frameworks that are generally accepted as being PES schemes (Matzdorf et al., 2013). The approach is now widely applied internationally in the context of rainforest conservation and carbon storage under the Kyoto Agreement (such as REDD+), although in practice the approach adopted tends to involve government payments rather than the PES ideal of exchanges between private sellers and buyers. In this respect, schemes tend to be similar to the European experience with agri-environment schemes.

There is some experience with PES in the UK, such as represented by the Defra pilot studies (Defra, 2016). Examples include the purchase of changes in agricultural land management by South West Water, facilitated by Westcountry Rivers Trust under the Upstream Thinking Initiative², or the development of the Peatland Code³. The experience indicates some potential for more widespread applications, such as for a 'Natural Infrastructure' as has been advocated by Green Alliance and the National Trust (Green Alliance, 2016). But the opportunities will be limited by problems of transactions costs and free-riding in many contexts. Defra (2016 p. 40) comments

² <http://wrt.org.uk/project/upstream-thinking/> (accessed 23 March 2017)

³ <http://www.iucn-uk-peatlandprogramme.org/peatland-code> (accessed 23 March 2017)

that given the challenges “mainstreaming such schemes will take time and effort, and will not be universally appropriate or feasible”.

ES procurement funds

A BESP would embrace a broader variety of approaches (Hodge, 2001) that would not have been possible under the CAP and the watchful eye of the European Commission. Support might be provided for the administration of large scale conservation areas, to support the withdrawal of land from agriculture, to pay for the implementation of conservation covenants (Law Commission, 2014), for the permanent protection of conservation sites, or to develop institutional arrangements for the implementation of PES schemes.

At least in the short to medium term, the bulk of ES will be provided through public funding. We envisage a larger number of devolved funding arrangements whereby various organisations would use funds in order to promote the delivery of ES, either with regard to particular ES operated at a national level or with regard to broader environmental objectives in particular localities. There could be various types of such ES procurement funds.

Each fund would have a clear purpose and approach. There could for example be a climate fund, a biodiversity fund to promote conservation of particular habitats or species or a forestry fund seeking to increase the proportion of the land area under woodland. Government already has targets relating to many of these objectives. These funds would seek to procure the relevant ES services from landholders and other organisations capable of delivering them through competitive tender.

One such fund might be established in order to support biodiversity conservation projects and the delivery of large scale conservation areas (Lawton et al., 2010; Adams et al., 2014). It would be operated at a national scale and focus on nationally significant species and habitats and the wider contexts within which they are set. To date, large scale conservation schemes, most often initiated by conservation NGOs, have been funded largely through a combination of CAP agri-environment contracts and separate project funding to cover costs of administrative and support activities. In this, there is a tension between the relatively short-term, project-based nature funding against the longer term, more adaptive approach sought for ecological restoration activities. A dedicated fund could fund the whole range of restoration activity, including administration, and have the potential to provide funds on a longer term, programmatic basis (Hodge and Adams, 2016).

There could also be a climate fund set up to support both climate change mitigation and potentially adaptation. This would be operated at a national scale on the grounds that the value of greenhouse gas mitigation is not affected by the location where the mitigation takes place. It is thus most efficient to fund projects competitively across a national scale. This would include projects to sequester carbon in soils as well as projects to promote changes to practices adopted in arable and livestock farming systems. At this stage, there is considerable uncertainty as to what

are the most cost-effective methods for mitigation and so the approach would need to be experimental and adaptive, supporting innovative initiatives, and competitive, inviting tenders that can reveal participants' willingness to accept costs in implementing the relevant projects.

There would also be the potential for funds to be directed towards the support of local landscapes, biodiversity and public access. These might be operated by local government or by private non-profit organisations. An obvious example would be for National Park Authorities or Area of Outstanding Natural Beauty Conservation Boards to manage funds to support local land improvements, but a similar example might be like that of Friends of the Lake District, a voluntary non-profit organisation that provides grants for projects throughout Cumbria. But more generally funds might be administered by local governments in order to pay for land management projects that can deliver ES of local value as represented by local stakeholders. This might support country parks, public access, local nature reserves or landscape enhancement.

A similar local approach could focus on catchment management working with catchment partnerships. There is an increasing interest in the contribution to changing land use in the context of flood risk management (Rouillard et al., 2015) but land use clearly has a major role to play in the governance of water resources more generally, such as in the management of diffuse pollution and agriculture is itself a major source of demand for water. Robins et al. (2017) have made ten proposals for improving water policy, including fully embracing community-led nested river basin planning and management that is properly funded. This would be a likely area for funding from a BESP.

Integration and national policy

A profusion of separate procurement funds operated at different spatial scales might be seen as countering the objective of achieving greater integration across the different areas of land policy. But integration has to be achieved at the local level. Integration seeks the cost-effective delivery of desired sets of ES. The complexity of integration lies in the trade-offs and complementarities associated with the provision of combinations of ES within a given area of land. This is not simply a matter of the agricultural income foregone plus the direct and transactions costs, but depends on the impact of the change in the level of one ES on the options and costs of delivering all other ES. It also depends on the cost-base of the landholders and their preferences towards the delivery of alternative sets of ES on the land under their control. This cost is not observable by government and is best understood by individual landholders.

Where the procurement fund manager has superior information to the landholder on the capacity of the land to deliver the ES that are demanded, then this information should be taken into account in targeting the incentives and guidance offered. Funds would also design incentives to encourage co-ordinated and joined up approaches at a larger scale where this can deliver social benefits. But such targeting should be flexible to the extent that the procurement fund generally lacks information on the costs of delivery and trade-offs and synergies amongst ES at the local

level. Funds might also offer matched funding as a means to leverage in additional funding from other sources, such as donations, corporate contributions or membership fees.

Landholders, individually, collectively or working with or through other intermediary organisations, would bid to provide the services sought. Funds would provide greater support for collaborative initiatives that can be implemented across larger spatial units and work with organisations providing support and facilitation. There could be a significant role for agri-environment cooperatives such as now take responsibility for the implementation of agri-environment contracts in the Netherlands (Ministry of Economic Affairs, 2016). Service providers would seek to deliver a range of services from the land under their control, effectively delivering a portfolio of ES. Defra (2016) discusses the options of layering, single ES procured by a separate fund, and bundling, sets of ES procured by a single fund. More work is required to explore these alternative approaches, which have implications for the appropriate balance between national and more local approaches towards procurement. The price that the funds would seek to pay for the delivery of any one service would reflect the marginal cost of delivery taking account of the range of services being delivered from a given area of land and the impact of that ES delivery on the potential and cost of marketed commodity production. It is also clearly important to be able to identify the marginal increment in ES delivery.

Procurement funds would monitor the outcomes of their funding activities. The fund would accumulate information on the methods and approaches that are more effective in delivering the relevant ES as well as on the prices revealed through the tendering process. This would be fed back into their targets and lessons learned would be disseminated amongst potential ES providers. This might lead to best practice guidelines for the delivery of the relevant ES.

A central government department would need to have oversight over the whole BESP. This would need to take a strategic view of land use (CPRE, 2017) and set out the approach towards the allocation of funds to support PES markets and procurement funds. A key question would be the appropriate balance between national and local funds, a balance that would be expected to change over time as local funds developed their capacity, representation and expertise. It would need to monitor the performance and accountability of the funds, again feeding this information back into decisions about how the BESP should develop over time.

Moving towards a BESP

BESP is not a policy that can simply be switched on immediately. Rather it represents a longer term goal. It demands a different system of governance, more collaborative, adaptive and devolved. Decisions about the best social use of individual parcels of land cannot be made by central government, although central government has a critical role in guiding decisions towards those uses. However, we currently lack the institutions for the governance of a spatially decentralised policy within local areas that can take account of the values and preferences of stakeholders and make the necessary trade-offs in a transparent, accountable and democratic

way. A range of innovative collective decisions arrangements are already in existence in the UK at local scales with varying remits and capacities, but none is fully developed in order to implement an ESs policy at a local level (Dwyer and Hodge, 2016). Amongst current institutional structures, National Park Authorities may be seen as coming closest to what is required at a more local level, but the approach would extend beyond the protected areas (Clarke, 2015), in principle across all areas. The support for Landscape Partnerships by the Heritage Lottery Fund, or the implementation of Nature Improvement Areas by Natural England, offer illustrations of the sort of approach that might be adopted towards local procurement funds. The current initiative to explore delivery in Pioneer projects (Natural Capital Committee, 2017) offers an important opportunity to experiment with alternative governance arrangements.

A BEP might initially be in the form of an extended and increased scale of agri-environment programme supporting the delivery of landscapes, biodiversity, flood protection, public access, archaeological conservation, farm open days and educational visits, higher water quality standards, and so on. Funding to support this would be provided by a gradual reduction in the level of direct payments as currently provided under Pillar 1 of the CAP. The level of direct payment would be expected to decline fastest and furthest in areas where farming can be competitive under whatever market conditions arise after Brexit. Markets, particularly land rents, asset prices and other prices would take time to adjust to the altered policy environment, such that viability cannot be judged now simply on the basis of the proportion of net farm income that currently derives from government direct payment. Funding would subsequently be transferred from the existing CAP approaches of direct payments and agri-environment schemes as the institutional capacity is developed to implement and operate the new approaches towards funding for ES delivery.

Challenges

Post Brexit, procurement funds would need to bear the full costs of land use change rather than being able to piggyback on a pre-existing agri-environment policy. The scope and potential for a BEP will depend on the arrangements that are in place for agricultural trade with the remaining EU and with other countries. Freer trade and lower domestic food prices will tend to lower the cost of influencing land uses and management in more productive agricultural areas but increase the cost of maintaining production in areas of lower productivity. It would create greater incentives for larger scale rewilding projects. Conversely, protection and higher food prices will increase costs of promoting land use change in more productive areas and reduce them in less productive areas.

Rural land policy will face tougher competition for public funds after Brexit. Support for agricultural policy in the EU has been successful in retaining a relatively large share of total EU funding for the CAP and much of the debate has been about the allocation of funds between Pillar 1 and Pillar 2 rather than about whether funds should be allocated to agriculture at all. Land policy in the UK will compete more directly for public funding against other strong claims for

funding for health, social care or education. There is then likely to be a closer examination of the social value of the outcomes that can be achieved from a BESP. There will be calls for monetary valuation to demonstrate these values, but there should be caution against the risk that this distorts policy expenditure towards those particular values that happen to be most amenable to monetary valuation techniques.

The rate of change in policy will depend on a balance between the speed with which existing payment levels can reasonably be reduced against the rate at which institutional capacity can be developed to administer an ecosystems approach. Direct farm payments should be reduced sufficiently gradually so as to avoid immediate short term disruption to environmental and social capital and human welfare. Rather policy should signal the longer term process of change. At the same time government will need to provide support for the development of PES schemes and procurement funds. Start up costs will initially be relatively high, in the same way that transactions costs of agr-environment schemes were high in the early stages but declined significantly over time (Falconer et al., 2001).

There will of course be concerns that a BESP would be administratively complex, difficult for landholders to cope with and involve high transactions costs. This reflects the high information demands of achieving cost-effective delivery of socially desired ES broadly across rural land. There are, of course, many aspects where we currently have insufficient information and where further research is required on design and implementation. The question is whether the costs are justified by the increased social value that can be delivered. The optimal transactions cost of implementing a scheme in any particular area depends on the marginal increase in social value achieved by a marginal increase in the complexity and cost of administration. We will thus expect more complex, and hence costly, arrangements in areas of higher environmental values where there are greater conflicts amongst alternative land uses and lower densities of administration in areas of lower environmental value. The former, such as National Parks, will deliver land uses more oriented towards the provision of non-market ES and the latter more towards commodity production.

The more devolved approach and a longer term approach to funding raises issues of transparency and accountability. Procurement funds will need to be, and be seen to be, responsive to public preferences and to allocate funding effectively for the delivery of resilient ecosystems. The issue here is similar to the governance of the charitable sector and so funds would be required to deliver transparent accounts and reports on their activities and achievements. It is also easier to maintain controls over cost effectiveness in the implementation of short term projects but there will be demands to provide greater security of funding over longer time periods. The systems to promote cost effectiveness and accountability need to be developed for the financial support for long term projects.

Conclusions

The UK government has to establish a new policy for rural land. This should start from the objective of promoting the best management of land for the delivery of ES and not from an aim to replicate the CAP. The present context provides an opportunity to break with the past. A failure to take the opportunity will re-establish the inevitable path dependency that has dogged the historical development of the CAP since its inception in the 1960s. The new policy should promote integrated delivery across the delivery of different ecosystems, implemented at a local level with decisions based on the principles of adaptive governance. However, at present we lack the governance structures by means of which such a policy may be implemented. While there are many questions as to the design and implementation of a comprehensive ecosystem approach, the direction of travel is relatively clear. The immediate aim should thus be to set out on a trajectory that that can take us to a British Ecosystem Services Policy.

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