

# Land use partnerships for addressing climate change: What are they, why use them, and how do they work?

## POLICY CONCLUSIONS

1. Partnership working between stakeholders can help make the delivery of complex, integrated land management policies more effective and efficient. However, this will require careful attention to the design of partnership governance structures, how they engage with stakeholders, the types of policy instruments they apply, and how they monitor and evaluate progress. Existing partnerships provide significant learning to inform future partnerships in all of these areas.
2. Clarity among partners on the objectives and scope of partnerships is essential for successful partnership operation. Where partnerships are used as a mechanism to deliver national targets, clarity on objectives and where these fit with other national mechanisms will help successful contribution towards targets at regional level.
3. Regional Land Use Partnerships as they are currently proposed, have limited statutory powers. More consideration needs to be given to how they best use softer powers such as convening and steering to influence land use decisions.
4. Successful partnerships are adequately and sustainably resourced, particularly in relation to core running costs, including employing a management coordinator and funding extensive stakeholder engagement. Partnerships can potentially tap into new sources of finance linked to environmental services and the private sector, though these will not necessarily contribute to core costs and may place constraints on how partnerships are structured (e.g. review systems).
5. As partnerships develop they will need to maintain focus on their role in strategic spatial planning, with individual projects contributing to a broader strategy, in order to deliver more integrated land management. There are a tools (e.g. the way partnerships are funded; investment in training) that can help maintain such a strategic remit.

Reducing greenhouse gas emissions and achieving climate change adaptation objectives in the land sector will rely on effective collaboration bridging scales and sectors. Many approaches to 'partnership' working have been developed in the sector, working at different scales and focussed on a range of issues.

Scotland has committed to the development of Regional Land Use Partnerships (RLUPs) to help deliver a more integrated approach to land use change and management, and meet its target of net zero by 2045. Stakeholders have different expectations about what RLUPs can deliver and how they might function. Success will rely in part on there being a clear vision for how they work. This brief explores how existing land use partnerships work and the learning they provide for how RLUPs might be designed to meet their multiple objectives.

---

## Climate Change and Regional Land Use Partnerships in Scotland

Reducing agricultural emissions and enhancing land use related sinks (e.g. tree planting and peatland restoration) will be key in achieving Scotland's ambitious climate change target of net-zero by 2045. In Scotland, agriculture contributes an estimated 18% of emissions, and wider land use, land use change and forestry (LULUCF) is a net sink, removing 13% of emissions (Climate Change Committee, 2020). Degraded peatlands are estimated to contribute an additional 14-24% of annual emissions (Climate Change Committee, 2020). Land use change and management also contribute to climate change adaptation, for example through natural flood management. However, land management is not just about climate change. Agricultural land makes up 72% of Scotland's land mass (Scottish Government, 2020a) and will be crucial in addressing the biodiversity emergency, reinvigorating the rural economy and achieving health and wellbeing targets.

Delivering the policy objective of integrated land management is challenging in practice. It amplifies many longstanding issues surrounding land use governance, such as how to align local interests and national priorities, and how to achieve policy coordination. It also forces new thinking at larger geographic scales to account for the increasing interconnectedness of drivers of land use change and management. This has led many to describe this challenge as a 'wicked' problem that extends beyond traditional scales of analysis and management (Freeman et al., 2015).

Scotland has put regional scale land use planning and partnership working at the heart of its approach to land management issues in the context of climate change. The updated Climate Change Plan (Dec 2020) commits to “make use” of Regional Land Use Partnerships (RLUPs) by the end of 2021 and related Regional Land Use Frameworks by 2023 (Scottish Government, 2020b). The concept reinvigorates approaches established in the 1<sup>st</sup> and 2<sup>nd</sup> Land Use Strategies since 2010. These new institutions aim to contribute to Scotland’s climate change targets and help meet other objectives (e.g. biodiversity loss), through collaborative and inclusive approaches to decision making across scales. Five new pilot partnerships have been announced and are in an early stage of development (led by Cairngorms National Park, Loch Lomond and Trossachs National Park, Scottish Borders and Dumfries and Galloway Councils, Highland Council, and Aberdeenshire Council).

There are many options for how these partnerships are established and function, as well as a range of expectations in what they might deliver. Different conceptualisations and confusion around the terminology used in discussions about RLUPs could lead to challenges in implementation, as has been suggested for ‘integrated landscape approaches’ more generally (Reed et al., 2015).

### What are land use partnerships?

‘Partnership’ or ‘integrated landscape’ approaches are increasingly used to address the complexities of land use governance, particularly those related to bridging different sectoral interests and scales. These approaches have been broadly defined as “a framework to integrate policy and practice for multiple land uses, within a given area, to ensure equitable and sustainable use of land while strengthening measures to mitigate and adapt to climate change” (Reed et al., 2015).

Partnerships vary in who their members are and how they are led (e.g. government-directed, citizen-based or hybrid partnerships); their timespan and degree of formality (e.g. intermittent coordination, temporary taskforces, permanent coordination, coalitions); and their powers (e.g. voluntary or statutory).

Different forms of partnership are now common in land use and management. In the UK, catchment partnerships have developed in relation to integrated water resource management, particularly driven by the EU’s Water Framework Directive and through Defra’s catchment based approach (CaBa) schemes. These aim to manage water quality across river catchments, so include many aspects of agriculture and land management involving multiple land owners and managers. Other partnerships in the UK are more directly focussed on land management. For example, a number of Landscape Partnerships have been funded

by the Heritage Lottery Foundation and there are several large-scale conservation partnerships (Adams et al., 2016).

There is a range of existing land use partnerships in Scotland, operating at local to regional scales. This briefing focusses on larger scale (>100 km<sup>2</sup>) partnerships as these are most relevant for the new RLUPs. Such partnerships cover a broad range of issues, including, for example, catchment partnerships implementing integrated river management plans (e.g. Dee Catchment Partnership), green infrastructure networks (e.g. Central Scotland Green Network) and rewilding projects (e.g. Cairngorms Connect).

### Why develop land use partnerships?

Partnerships often fill a niche where “command-and-control” natural resource management policies have failed, and address complex societal and environmental issues that cannot be solved by a single institution (Diaz-Kope and Miller-Stevens, 2015).

There are many arguments for the use of partnership approaches, including:

- **Increased effectiveness** in achieving results. This may result, for example, from increased buy-in from those involved in managing land and increased sustainability of any changes.
- **Increased efficiency**, for example through improved coordination of policy planning and implementation.
- **Increased legitimacy** of adopted approaches through the democratisation of decision making. This may, for example, help in reconciling top down and bottom up approaches to decision making.

### How do land use partnerships work?

Land use partnerships are highly variable in how they are structured, making them difficult to compare. However, they share similar attributes, including:

- **Scope:** range and types of resource-related issues addressed by partnership.
- **Scale:** spatial scale at which partnership operates
- **Responsibility:** how functions, responsibilities, and powers are determined and allocated among governing institutions.
- **Engagement:** how external organizations and groups are involved in partnership activities.
- **Instruments:** approaches used to plan and influence land use decision making (e.g. financial incentives).
- **Finance:** how funding is generated and allocated to enable the partnership to operate, and to implement policies, programmes, and projects.
- **Review:** the ways in which partnership governance systems and deliverables are assessed and adjusted.

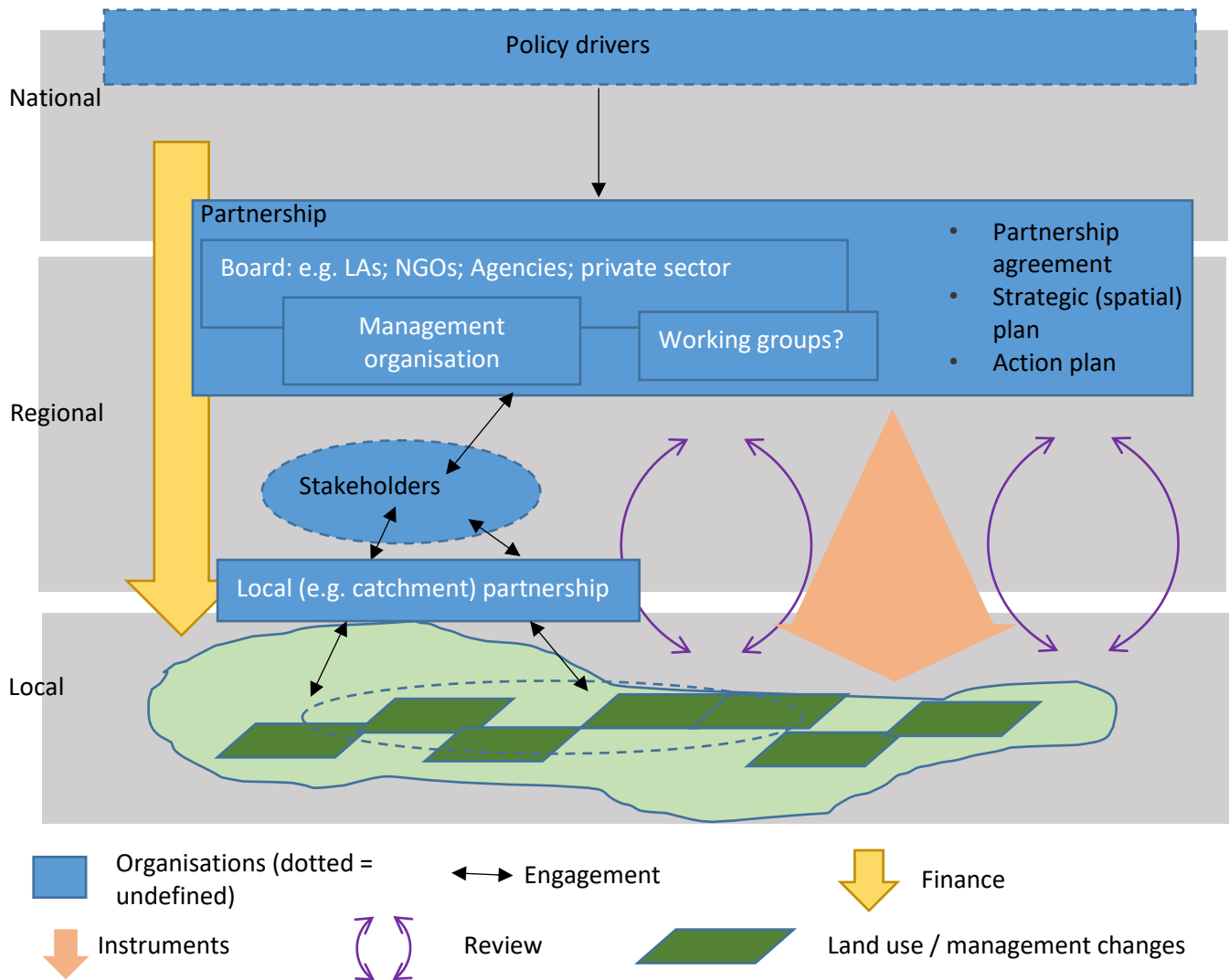


Figure 1: Schematic model of main attributes of an idealised large-scale land use partnership. Partnership includes public sector organisations, NGOs and private sector organisations and may be formally/informally linked to local level partnerships. Partnership is managed by a management organisation (normally one of the partners) and may have working groups directing specific activities. Responsibilities are defined in a partnership agreement and work is guided by a strategic (potentially spatial) plan and action plan. Funding is provided by multiple sources (central government, individual partners, foundations and private sector), is ideally long term and with legacy planning as part of financial strategy. Engagement occurs through sub-regional representative stakeholder groups and directly with communities near projects implemented by partnership. Multiple instruments are used to influence land use, but the focus is on 'programmatic' instruments funding strategic and integrated interventions and projects, in accordance with a spatial strategy. Reviews evaluate outcomes and are carried out regularly compared to a baseline. Review system assesses how the partnership itself is functioning in addition to its activities.

These attributes come together spatially and temporally to govern how partnerships operate and function within the wider land management context (Figure 1). We summarise learning in each of these areas from existing partnerships in the sections below.

### Scope and scale

Most land use partnerships focus on delivering multiple (environmental, social and economic) benefits. However, many have emerged from local environmental initiatives and environmental objectives are often more visible in their vision statements, although many include broader social and economic objectives, such as sustainable tourism, active travel, and economic recovery. Research on partnerships has highlighted trade-offs that can emerge between the breadth of scope and ability of partnerships to implement activities (Waylen et al., 2021), suggesting

that their scope needs to be carefully defined and considered in relation to the resources available to the partnership.

The area covered by regional partnerships in Scotland ranges from 200 km<sup>2</sup> to 10,000 km<sup>2</sup> with boundaries based on river catchments, administrative boundaries (e.g. Local Authorities, National Parks) or similarity in landscape characteristics (e.g. similar geology, biodiversity and land use, or areas important for biodiversity conservation). There are trade-offs between the spatial scale of partnerships and their ability to engage with land owners and managers on the ground. Large partnerships therefore need to consider how they bridge across scales. This can be achieved through 'nested' management and stakeholder engagement processes – Watson et al. (2019), for example, describe how successful catchment partnerships in the United States have evolved a two-

level management structure. In Scotland, implementation of the first Land Use Strategy pilots used carefully selected stakeholder groups in six localities to develop the larger scale land use framework.

### **Responsibility**

Partnership management structures vary depending on the number and type of partners involved, and their funding mechanisms (see e.g. Table 1, comparing three different partnerships). Partnerships reviewed here typically have 5 to 15 partners and they are dominated by public and third sector organisations. They often form organically, converging around an issue or funding opportunity. The type of partners involved has implications not just for the scope of the partnership but also for its powers to influence changes in land use. Many of the partnerships involving local authorities and statutory agencies have more regulatory and financial powers. However, even these can be limited by a lack of land ownership (Dwyer and Hodge, 2016).

Partnerships are normally guided by a Board (elected in larger, more formal partnerships, but often much more informally selected in smaller partnerships), with activities managed by a management group and supported by a partnership coordinator (often an employee of one of the partners). Research highlights the importance of a well-resourced coordinator in the successful operation of partnerships (Waylen et al., 2021).

Partnership agreements ideally set out shared objectives, finance and accounting procedures, processes for changing partners, conflict resolution and monitoring and evaluation procedures. However, these agreements are highly variable, and decision making structures are often informal or opaque. Whilst this informality can maintain a positive and collaborative approach there is a risk that the partnership avoids addressing more complex challenges (Waylen et al. 2021).

### **Engagement**

Partnerships use a spectrum of engagement approaches with wider stakeholders, from simpler informing and consulting, to more direct stakeholder ownership in partnership management. Examples of the approaches used to inform and consult include online surveys, town hall meetings, exhibitions, field visits, volunteering programmes and activities with schools. More innovative approaches, such as use of interactive mapping, virtual reality and scenario exercises, have been used by some partnerships to help understand different stakeholder perspectives. Consultation activities may be a statutory requirement, for example, under planning legislation, environmental regulations or forestry licensing. In some partnerships deeper engagement is achieved through community ownership

or buy-in to the partnership – for example, decisions made by the Directors and staff of the North Harris Trust are informed by votes from North Harris residents.

Engagement processes raise some significant challenges, including:

- Difficulties in bridging local and national interests.
- Representation challenges, particularly in larger, more rural partnerships.
- Significant resource requirements.
- Limited skills in consultation, facilitation and conflict management.
- Co-option by certain interest groups and the inability to resolve deep seated conflicts.
- Lack of reporting back to stakeholders.

Some of these challenges can be overcome through careful design, for example by targeting hard to reach groups, employing an independent facilitator or using a trusted intermediary (e.g. local NGO) to bridge national and local interests. There are numerous existing resources on best practice engagement, including Scottish Government guidance (Pound et al., 2016).

### **Instruments**

Policy instruments used by partnerships to influence land use decisions range from voluntary approaches, such as education, convening, and fundraising for specific interventions, to statutory instruments, such as imposing regulation and levies. RLUPs as they are currently proposed, will be limited to voluntary instruments. Nevertheless, partnerships can have significant ‘soft’ power through their ability to convene local stakeholders around a particular issue, develop a shared strategy and raise funds, which can influence statutory processes and the activities of individual land managers. This potential for partnerships to steer more strategic land use decision making processes is important in the context of deciding where RLUPs focus their efforts. Climate Ready Clyde, whilst not a land use partnership, provides a useful example of a partnership that has primarily worked on steering the production of an integrated climate change adaptation plan for the Glasgow region. Efforts have been focussed on convening partners (particularly different local authorities) to identify how the impacts of climate change can be mainstreamed across different sectors.

In practice, most existing land use partnerships do not appear to engage in strategic spatial land use planning. Instead they tend to implement a series of discrete projects linked to a partnership action plan. This may be because of land ownership constraints limiting where different partnership activities can be implemented and the activity-specific nature of many funding sources. However, there are examples of partnerships using more elaborate spatial planning approaches, such as the development of integrated habitat network mapping (e.g. Inner Forth Futures), ecosystem service mapping

Table 1: A comparison of the attributes of three Scottish Land Use Partnerships as an illustration of their diversity.

Name	Cairngorms Connect	Dee Catchment Partnership	Loch Lomond and Trossachs National Park Partnership Plan
<b>Overview</b>	Partnership of neighbouring land managers with 200-year vision to enhance habitats, species and ecological processes.	Partnership established to restore habitat and water quality in the River Dee catchment.	The National Park Partnership Plan guides the work of the National Park Authority and partners involved in managing the area to deliver on an agreed vision.
<b>Scope</b>	Restoring and promoting natural processes; Working at landscape scale	Tackling climate emergency (carbon storage and building resilience); Restoring/creating habitats; Supporting sustainable food production; Green recovery from coronavirus for Deeside.	Conserving and enhancing natural and cultural heritage of the area; Promoting sustainable use of natural resources; Promoting understanding/enjoyment of the area by the public; Promoting sustainable economic development of local communities.
<b>Scale</b>	600 km <sup>2</sup>	2108 km <sup>2</sup>	1865 km <sup>2</sup>
<b>Responsibility</b>	Voluntary partnership. 4 main partners (govt. agencies, private landowner and NGO who between them own all of the land). NP authority is a supporting partner helping inform delivery on the ground. Memorandum of Understanding (MoU) defines vision and how the partnership intends to achieve it, and includes some compliance requirements for partners.	Voluntary partnership. Includes statutory agencies, research institutions, interest groups, land managers and individual householders. Two-tier structure includes a Management Group (funding bodies) and the wider Partnership. Management Group ensure implementation of Annual Delivery Plan, manage funding and staff and is chaired by one of the Group. Also 4 Project Delivery Groups focussed on implementing project priorities.	Statutory partnership (under the National Parks (Scotland) Act 2000). Full land use planning and development control powers. Authority has a Board with mix of local elected members and those appointed by central government. The partnership network includes Lead Delivery Partners (mainly govt. agencies) and Support Delivery Partners (mainly NGOs, LAs). The partnership plan provides the framework to guide and support the activities of organisations and partners to work together.
<b>Engagement</b>	Informing public about project; community consultation e.g. on floodplain restoration; public surveys around indicators (e.g. empowerment) working with artists and musicians.	Public consultation on the Dee Catchment Management Plan (2007); ongoing public consultations on strategy; many activities engaging the public.	The development of the 2018-2023 National Park Partnership Plan involved significant engagement with a broad range of stakeholders, including a 6 week online consultation.
<b>Instruments</b>	Controlling deer numbers to allow forests to expand; improving quality of existing forests, expanding forest to its natural limit; naturalising rivers; restoring tracts of peatland; and giving common messages to visitors.	Catchment Management Planning (strategic plan for managing catchment, including baseline of water quality, biodiversity etc.). Plan guides range of different project activities implemented by partners (e.g. restoring beds and banks; reducing pollution; slowing the flow; managing water in towns; research and monitoring; outreach and education.)	Strategic land use planning; managing grant schemes (e.g. tree planting); advising land managers (e.g. with SRDP applications); implementing projects with partner agencies (e.g. peatland restoration).
<b>Finance</b>	Charitable (Arcadia) + other charitable/statutory agency funding. £3.75 million from the Arcadia and £9m in total including partner funding.	Diverse funding from partners (generally tens of £000s). Various larger funds for specific projects. E.g. EU funding has provided £10 million in Deeside restoration projects since 2003.	~£7.5 million annual budget for NP Authority. Many individual partnership initiatives funded separately/under budgets of different delivery partners. Authority has role in coordinating budget spending by different statutory partners.
<b>Review</b>	Science and monitoring in three areas: 1. Providing an evidence base. 2. Testing interventions to assess alternative techniques that improve restoration success. 3. Monitoring against nine indicators across three areas: a) Ecosystem services (e.g. flood risk / climate regulation); b) Societal benefits (health and wellbeing / economic opportunities associated with restoration); c) Ecological responses (changes in plant and animal communities).	Outcome-based monitoring of each project and longer-term monitoring programme implemented with partners (e.g. SEPA). In 2020 DCP reviewed progress against 37 objectives and 300+ actions since 2007.	Partnership plan sets out targets and indicators in each chapter. These are regularly reviewed throughout the period of the plan.

(e.g. the Scottish Land Use Strategy Pilots 2013-2015) and the development of a masterplan (e.g. Leven Programme).

Few partnerships are implementing market-based instruments (e.g. payments for environmental services such as carbon sequestration). This may be because these markets are still relatively immature and involve more complex and specialised skills (e.g. monitoring and reporting). Nevertheless opportunities for partnerships to use these instruments are growing with, for example, the development of the Forest Carbon Code and the Peatland Carbon Code.

## **Finance**

The majority of Scottish land use partnerships reviewed here are publically funded through government budgets, foundations, or charitable grants. Statutory partnerships, such as the National parks are funded by central government, with additional funding provided by individual partners (usually government agencies) for specific projects. Foundation and charitable funds are a key source of support for many partnerships. For example, the Heritage Lottery Fund funded a considerable part of the Coigach and Assynt Living Landscape (CALLP) initiative and the Inner Forth Landscape Initiative (£2.9 million and £2 million respectively)

The availability of funding is a key constraint for the operation of many partnerships (Adams et al., 2016). It can be particularly hard to attract funding for core management functions (as opposed to projects that the partnership implements). Much of the public and charitable funding is provided for a limited timeframe (typically 3-5 years), making long term planning difficult and often resulting in those managing partnerships spending much of their time fundraising (Dwyer and Hodge, 2016). While it is not clear in many partnerships how they plan their long term financial model, there are some useful examples of 'Legacy planning' including (Mount, 2013):

- Further fundraising.
- Establishing not-for-profit business ventures.
- Establishment of a 10-year maintenance fund.
- Partners or volunteer groups taking on responsibility of individual projects.
- Tying third parties into legacy safeguards (e.g. the Forestry Commission for woodland grant schemes).

Private finance and private sector participation is still rare in existing land use partnerships. However, emerging initiatives, such as Landscape Enterprise Networks (LENS) are testing partnership models that link environmental service providers (land managers) with local and international businesses relying on these services.

## **Review**

Where review mechanisms are documented, partnerships commonly monitor and report activities using a standard project review approach, assessing actions and outputs against indicators set out in their strategic plan or action plan. They often use proxy indicators, such as the number of events held, or people consulted or trained.

However, some land use partnerships have developed more detailed review systems based on outcome indicators, quantifying changes in key environmental indicators in the area covered by the partnership. Cairngorms Connect, for example, is mapping the habitat types in their current state, which they will then use to develop maps of projected restoration actions that they can compare with a business-as-usual scenario. Central Scotland Green Network (CSGN) has also developed a detailed monitoring and reporting system. Initially it developed a 2010 baseline to help track progress in delivery up to 2050 across ten key indicators, assisted by a geographic information system. They have divided their monitoring and reporting activities into three areas, focussing on the partnership itself (how CSGN is acknowledged and embedded within partner policies, guidance and practice); the programmes implemented (where a case study approach is used); and the annual work plan (used to monitor the activity of the Board, Partners and Support Unit). A similar approach to the review of RLUPs may be useful to help determine the effectiveness of the partnership as well as its activities.

## **Building successful land use partnerships**

Research on land use and other relevant partnerships highlights several areas contributing to successful partnership establishment. These include:

### **Clarity on the vision and scope of the partnership:**

An early agreed vision based on a clear understanding of the scope of issues to be addressed by the partnership is key to guiding many other aspects of how partnerships are structured (e.g. types and numbers of partners; division of roles and responsibilities; types of agreements defined between partners).

### **Clear management and decision-making procedures, defined in a partnership agreement.**

These should set out shared objectives, finance and accounting procedures, how decisions are reached among partners, processes for changing partners, conflict resolution and monitoring and evaluation procedures.

### **Capitalising on partnership convening power.**

Commonly land use partnerships are limited to voluntary powers. In such cases and with limited resources, it may best to focus on how they can 'steer'

processes by helping to strategically identify priorities and guide partners who have more influence on implementation. Particularly relevant to implementing large 'landscape-scale' approaches that are an objective of RLUPs, is ensuring partnerships develop a more strategic spatial plan rather than a series of isolated projects. These more programmatic functions could be incentivised by funders.

**Employing a dedicated management coordinator** whose function is to administer the partnership and communicate with partners and stakeholders. Depending on the scale of the partnership a 'trusted intermediary', such as an NGO with established land manager networks can be useful for successful partnership implementation (Rouillard and Spray, 2017).

**Extensive stakeholder engagement that involves land owners and managers.** Stakeholder engagement is essential to ensure collaboration with land owners and managers, especially where partnerships are implementing approaches that deliver multiple benefits. Consultations will need to be much more detailed than those used in existing planning processes. There are a number of approaches that can be used to improve engagement processes, although these generally require significant time and financial resources, which have to be factored into the core budgets of partnerships.

**Ensuring adequate and sustainable finance for core operational costs.** Secure and long term funding can help ensure partnerships are more strategic. 'Legacy planning' can help to identify options for more sustainable business models, for example, through establishing long-term maintenance funds or defining clearly how partners will take responsibility for individual projects. Partnerships could also be structured to enable them to access new financial instruments (e.g.

carbon finance, which requires particular monitoring, reporting and verification standards).

**Implementing effective review systems that evaluate outcomes.** Review systems ideally need to assess both how the partnership is functioning and the impact of its activities in terms of outputs and outcomes. These systems need to be established early on, including development of a baseline with which to compare progress and a well-defined review cycle that revisits indicators.

## Conclusions

Land use partnerships have become a necessary mechanism for addressing complex cross-sectoral challenges in the land sector and for helping to ensure land use change and management has multiple benefits. Existing partnerships that focus on environmental outcomes come in many forms, though they are predominantly relatively informal, public/third sector dominated, and non-statutory institutions. Nevertheless some partnerships exert significant influence on integrated land use planning processes and attract substantial financial resources to implement projects on the ground. However, most partnerships are subject to significant barriers such as adequate resourcing for core operational costs and difficulties engaging in strategic planning due to limited statutory powers over land within their jurisdiction, a lack of incentives for more strategic activities, and limited skills. Regional Land Use Partnerships – a key part of Scotland's strategy for delivering net zero in the land sector – are bigger in scale and scope than many existing partnerships, and their role in the wider policy landscape is still relatively undefined. They are therefore subject to potentially greater challenges. For RLUPs to be successful it will be crucial to address these issues early on and carefully build on experience from existing partnerships.

- 
- Adams, W.M. et al. 2016. Creating restoration landscapes: partnerships in large-scale conservation in the UK. *Ecol. Soc.* 21.
- Climate Change Committee, 2020. Reducing emissions in Scotland Progress Report to Parliament. Climate Change Committee, London.
- Diaz-Kope, L. & Miller-Stevens, K. 2015. Rethinking a Typology of Watershed Partnerships: A Governance Perspective. *Public Works Manag. Policy* 20, 29–48.
- Dwyer, J. & Hodge, I. 2016. Governance structures for social-ecological systems: Assessing institutional options against a social residual claimant. *Environ. Sci. Policy* 66, 1–10. <https://doi.org/10.1016/j.envsci.2016.07.017>
- Freeman, O. E. et al. 2015. Operationalizing the integrated landscape approach in practice. *Ecol. Soc.* 20(1): 24. <http://dx.doi.org/10.5751/ES-07175-200124>
- Pound, D. et al. 2016. Engaging and empowering communities and stakeholders in rural land use and land management in Scotland. Scottish Government, Edinburgh.
- Reed, J. et al. 2015. What are 'Integrated Landscape Approaches' and how effectively have they been implemented in the tropics: a systematic map protocol. *Environ. Evid.* 4, 2. <https://doi.org/10.1186/2047-2382-4-2>
- Rouillard, J.J. & Spray, C. J. 2017. Working across scales in integrated catchment management: lessons learned for adaptive water governance from regional experiences. *Reg. Environ. Change* 17, 1869–1880. <https://doi.org/10.1007/s10113-016-0988-1>
- Scottish Government, 2020a. Scottish Agricultural Census: final results - June 2020. Scottish Government, Edinburgh.
- Scottish Government, 2020b. Securing a green recovery on a path to net zero: climate change plan 2018–2032 - update. Scottish Government.
- Watson, N. et al. 2019. Governance Arrangements for Integrated Water Resources Management in Ontario, Canada, and Oregon, USA: Evolution and Lessons. *Water* 11, 663. <https://doi.org/10.3390/w11040663>
- Waylen, K.A. et al. 2021. Exploring the delivery of multiple benefits by Catchment Partnerships. James Hutton Institute, Aberdeen.