

ESPA Knowledge Strategy & Research Framework



The **ESPA Research Framework** is intended to provide a starting point to conceptualise ESPA's research and builds upon the figure presented in the 2010 Announcement of Opportunity which was modified following feedback from the ESPA research community during early workshops in support of the call.

The **ESPA Knowledge** programme is intended to support ESPA's projects to design and implement world-class science and in conjunction with the **ESPA Impact Framework** to assist projects to put research into use in a way that will improve the lives of the world's poor and secure ecosystem services. The ESPA knowledge programme will both stimulate and focus research projects, and draw on findings from researchers to develop broader and more synthetic findings. This document updates the earlier notes from the Directorate and presents a revision of the research framework as well as outlining future activities of the Knowledge Programme.

When preparing proposals for ESPA research, applicants should refer to the relevant Announcement of Opportunity for information about the call and types of research likely to be funded. Applicants should note that proposals will only be evaluated against their fit to the criteria stipulated in the AO. This should not be taken as being prescriptive and should simply provide guidance to researchers. The ESPA programme recognises that the teams implementing individual projects are likely to be best placed to understand their own research challenges and approaches. It is, however, important that the ESPA projects demonstrate how their planned research activities link to the ESPA research framework in such a way that will build upon existing literature to address critically important research questions and evidence challenges.

ESPA Research Framework

ESPA sees people as part of ecosystems and sees the sustainable alleviation of poverty as a constituent goal of sustainable ecosystem management. The system involves connections between three different sets of interactions, depicted in the blue, green and yellow parts of Figure 1.

(a) Human well-being and poverty reduction (blue)

In line with previous assessments, and following the terminology of the Millennium Ecosystem Assessment, ESPA recognises that there are many different components of human wellbeing including health, education, security, access to material benefits and social networks, all of which are underpinned by freedoms, choices and responsibilities.

ESPA research will need to generate an understanding of the multidimensional nature of human well-being and poverty and growth within the societal context of the systems being studied. The ESPA Directorate will work with funded projects to explore, define and refine the concepts of well-being, poverty and growth used within the programme.

(b) Ecosystems (green)

Ecosystems are the places where biotic and abiotic components of the environment come together spatially. The natural *ecosystem structures and processes* underpin a variety of *ecosystem functions and capabilities*, such as primary production, water regulation and nutrient cycling that

ultimately support *ecosystem services*, such as timber production or freshwater provision, from which people benefit. The *ecosystem services* are defined as the final point in the delivery chain from ecosystems that are used by people for material *goods*, such as food or fuel, or for non-material *goods* such as climate regulation, cultural benefits or flood prevention. Both material and non-material goods have *values* which can be measured in monetary or non-monetary terms (e.g. health status, cultural appreciation). The same *goods* may have different *values* depending on the context (place, time, person *etc.*). The *values* derived from ecosystems can influence how people treat or manage the ecosystem, which will affect their natural structure and processes. Hence this component can be thought of as a cycle with many kinds of feedbacks (Figure 1).



Figure 1 **ESPA Research Framework** showing three sets of interactions (blue: wellbeing of the poor; green: ecosystems and their services; yellow: social, economic and political enablers of change)

(c) **Enabling Conditions (yellow)**

ESPA identifies a number of different societal structures and processes that can provide enabling conditions for poor people and societies to sustain benefits derived from ecosystem services. ESPA considers that people need to be at the heart of nearly all of ESPA's activities. The *people and partnerships* enabling condition describes local structures and relationships affecting livelihoods, equity and local resource management which together influence how poor people can use ecosystem services to enhance their well-being. People will also play a very important role in acting as *change enablers* e.g. translating ESPA research into results that benefit the poor. ESPA researchers should refer to documentation describing the ESPA Impact Framework to consider how a range of non-traditional research partners can also play a role translating research into use and build impact.

Political economy is considered to be both an enabling condition and an ESPA research theme in its own right. This covers topics including governance, social structures, markets and institutions leading to the social, political and economic processes that ultimately determine the management of ecosystems – essentially, who gets to decide what, and when and how they do it.

ESPA's *external drivers of change* include societal, technological and environmental processes that can influence the ESPA agenda. Societal changes can include demographic change, economic growth or education. Technological change could include new ways of capturing benefits from ecosystems, but could equally be a change that has negative impact on ecosystems and the people that depend on them. Finally, environmental change can be long-term (e.g. climate change or human migration) or short-term (e.g. application of new fertilisers or land use change) and will impact on both people and ecosystems. In all cases it is important for ESPA research to recognise that the external drivers of change may be negative or positive and that in some cases change is irreversible. Some ESPA research activities will need to consider the existence and importance of critical limits (tipping points) or thresholds (enabling conditions) that need to be exceeded before effects are significant as a driver of change.

ESPA projects are required to contribute to the pool of **Global ESPA Knowledge** and their **pathway to development impact** should demonstrate a credible pathway to utilise that knowledge to generate benefits for the poor. All ESPA projects will need to show an awareness of existing research and knowledge, and applications for funding should describe the advances in knowledge that may be expected from the proposed programme of research. In some contexts, traditional or indigenous knowledge will provide useful information that complements knowledge generated through scientific study or experimentation. ESPA projects should therefore consider if indigenous knowledge could contribute to the research agenda and how this knowledge would be best used.

There are interactions between the three components of the ESPA Research Framework as well as within them. ESPA's ambition is to undertake research on these interactions in order ultimately to provide sustainable benefits to the poor. Not only does this require working across all three kinds of processes (i.e. human well being, ecosystems and the enabling conditions for change), but it also will necessitate examining the consequences across spatial and temporal scales (see Figure 2).

Spatial interactions: Some ecosystem services may provide benefits at regional scales but have costs locally (for example, freshwater provided to downstream communities may lower the local water table, causing loss of soil and soil quality), others may operate the other way around (for example, food production from aquaculture could benefit local communities but inputs and outputs could produce pollutants and other costs regionally). Local conversion of land for agriculture and human infrastructure has delivered great improvements in food and energy production but with consequences for the regulation of the climate system.

A further political complication is that ecosystem services can operate over scales that cross geopolitical boundaries – where the generation of ecosystem services and subsequent capture of benefits may be spatially distinct, separated by many hundreds of kilometres and located in different political and legal jurisdictions. The resulting cross-boundary issues create a particular challenge in the political economy of ecosystem services.

Temporal interactions: Short term gains may have long-term costs, yet sustainable development requires that future generations should not be deprived of options. Hence, any investigation of any combined social and ecological system should consider the longer term. Figure 2b illustrates time scales in terms of human generations. Sometimes, particularly when considering natural processes, it may be necessary to consider consequences more than a hundred years into the future. For example, the long lifetimes of greenhouse gases in the atmosphere means that decisions about emissions made today have consequences hundreds of years into the future. Governance and institutions also have intrinsic timescales for change; some are very hard to influence, others may be very easy to change.

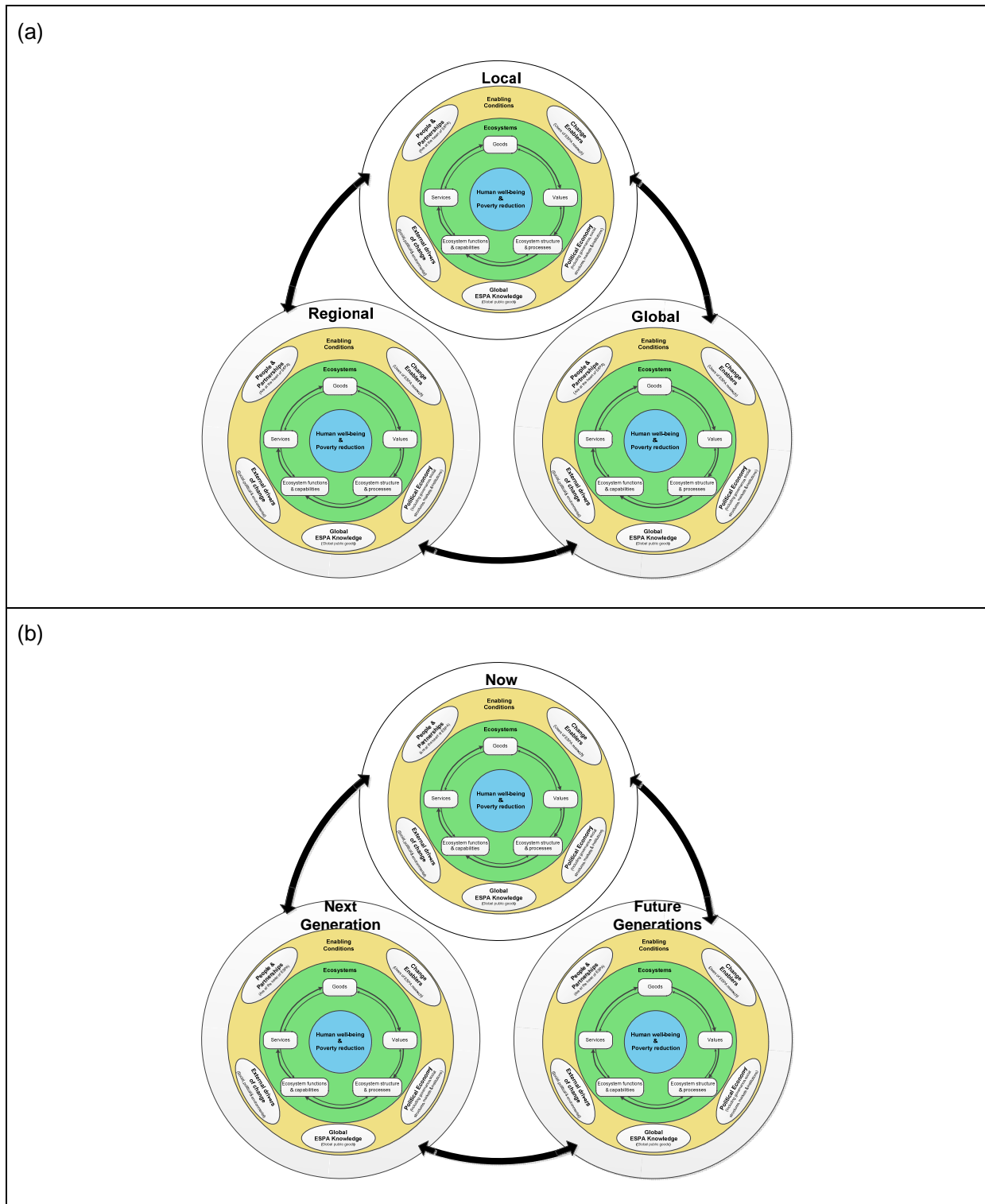


Figure 2 Interactions in ecosystem service delivery across (a) spatial and (b) temporal scales.

The evolving ESPA Knowledge Strategy – how the Directorate will collaborate with ESPA research projects

ESPA projects will be funded to conduct world-class research that generates new knowledge about the links between ecosystem services and poverty alleviation. The ESPA Directorate will manage a Knowledge Strategy which will be regularly updated to ensure that the programme as a whole has maximal impact. It is important to emphasise that the majority of research generated by ESPA will be the responsibility of the investigators funded by the programme. But, in circumstances where both knowledge and the community of scientists working on ES for PA are small in relation to needs, ESPA as a programme will need deliver more than the sum of the outputs from individual research projects. Thus the ESPA Directorate's role in the Knowledge Strategy will be to add value. This will be achieved in a variety of ways, including both pre- and post-project reviews; networking; sharing of data, tools and techniques; and effective integration of results. The potential added value will undoubtedly be greater if investigators understand this role and are willing to actively engage with the Directorate from the outset. The Directorate aims to make this engagement rewarding and simple by providing tools, resources and training that will help projects to meet their own goals while at the same time aligning them to a set of shared principles and approaches for all ESPA work.

Key roles for the Directorate over the course of the programme are as follows:

(d) To develop interdisciplinary working

ESPA science includes natural, social and political science; areas of working that have not traditionally collaborated closely, and where there are some fundamental differences among the research communities involved in their approach, language, evidence base, and methods for communicating findings. A key priority for ESPA is to break down these barriers. As ESPA proceeds we expect to be able to refine the approach and develop and communicate methods and frameworks that are appropriate for particular social or environmental contexts.

(e) Ensuring the quality and relevance of the science

Research staff in the Directorate will monitor the scientific literature to identify relevant new findings, approaches and insights; and make them available to the wider ESPA community. In addition, ESPA-funded researchers will be required to contribute their findings through an ESPA Data and Publication repository. Examples of new findings and approaches that can be adopted more widely will be communicated to specific projects as well as being communicated more generally. In this way we plan to radically speed up the rate of positive feedbacks among different elements of the programme.

(f) To integrate and synthesise knowledge emerging from outside ESPA

There are many related projects and programmes elsewhere in the UK and overseas, including for example the UK National Ecosystem Assessment, the EU project on the Economics of Ecosystems and Biodiversity (TEEB), the global science programme PECS (Programme of Ecosystem Change and Society) and the Natural Capital Initiative (www.naturalcapitalinitiative.org.uk), as well as the large, collaborative Natural Capital Project and InVEST (Integrated Valuation of Ecosystem Services and Tradeoffs) (<http://www.naturalcapitalproject.org>). We expect that over the coming years many more projects of this kind will emerge and ESPA needs to be aware of relevant findings and build on them, while recognising that many will have different beneficiaries and priorities.

(g) *Identify gaps and overlaps in the research programme*

The set of research activities funded by ESPA researchers and by others working in related areas may not provide the complete spectrum of work that is necessary if ESPA is to deliver impacts to its identified beneficiaries. Periodically, but no less frequently than annually, ESPA science will undertake a gaps and overlaps analysis of research projects and their findings. This activity should identify areas that are important for the programme but where activity is limited, as well as areas where multiple projects are addressing similar issues and have the potential to inform one another. This can both inform ESPA researchers as well as helping to focus future calls and the programme. At the same time the Directorate will ask ESPA's wider stakeholder community to identify any emerging policy and evidence challenges that could be addressed by the programme.

(h) *Organise scientific meetings and build links to other science programmes and societies.*

A regular ESPA conference will be organised by the ESPA Directorate. But in addition, ESPA will seek to organise topical symposia, workshops or other activities at the meetings of other scientific societies. This will serve to both take ESPA out to other disciplines and also learn from others.