



## **Announcement of Opportunity**

### **Part A: Research Specification**

#### **Deadlines:**

**Expressions of Interest by  
8<sup>th</sup> December 2010**

**Full proposals by  
19<sup>th</sup> January 2011  
16.00 UK local time**



- 1.0 Aims of ESPA and purpose of this call ..... 3
- 2.0 Summary of funding opportunity ..... 3
- 3.0 Background ..... 3
- 4.0 Scope of the call ..... 4
  - 4.1 Excellence with Development Impact ..... 4
  - 4.2 The ESPA Research Framework ..... 5
  - 4.3 Policy and decision making needs, evidence challenges and overarching questions ..... 8
  - 4.4 Themes ..... 8
  - 4.5 Geographic regions ..... 9
  - 4.6 Research Uptake and Impact ..... 9
  - 4.7 Capacity Building ..... 10
- 5.0 Summary and checklist for applicants ..... 12
- Box A: Evidence challenges ..... 14
- Box B: ESPA Thematic areas ..... 16

## **1.0 Aims of ESPA and purpose of this call**

ESPA's goal is to ensure that, in developing countries, ecosystems are being sustainably managed in a way that contributes to poverty alleviation and inclusive/sustainable growth. To achieve this goal, ESPA will invest in cutting-edge research that delivers improved understanding of how ecosystem function, the services they provide, the full value of these services, and their potential role in achieving sustainable poverty alleviation. Crucially, ESPA funded research must provide evidence and tools to enable decision makers and end users to manage ecosystems sustainably and in a way that contributes to poverty alleviation.

The purpose of this call is to invite proposals that will address this agenda.

## **2.0 Summary of funding opportunity**

Applications are invited for Research Consortia that respond to this aim. Awards may be between 3 to 5 years in duration with a full economic cost (FEC) value of between £500,000 and £4,000,000, with exceptional projects eligible to bid up to £5,000,000. This call has a total budget of £16 million.

**Closing date for Expressions of Interest: 8th December 2010**  
**Closing date for receipt of full applications is 19<sup>th</sup> January 2011 16:00 UK local time**

## **3.0 Background**

ESPA is a partnership that brings together the Department for International Development (DFID), the Natural Environment Research Council (NERC) and the Economic and Social Research Council (ESRC) to deliver a planned 7 year (2009 – 2016) interdisciplinary research programme, with a total budget of £40.5 million. ESPA is launched under the umbrella of the Living with Environmental Change (LWEC) partnership ([www.lwec.org.uk](http://www.lwec.org.uk)).

Governance of ESPA is overseen by the Programme Executive Board (PEB), who are responsible for the delivery and strategic direction of the ESPA Programme. In turn, under the direction of the PEB, the ESPA Directorate then supervise the delivery and coordination of the range of research, research into use and capacity building activities funded by ESPA. All projects funded under this scheme will be required to work closely with the Directorate, to ensure that projects develop in a way that is consistent with core ESPA strategies for knowledge, impact and data management.

It is anticipated that ESPA will be delivered through three funding rounds. In addition to this announcement of opportunity, calls are planned for late 2011 and late 2013. A series of activities run by the ESPA Directorate will also contribute to ESPA's delivery.

This announcement of opportunity invites proposals for research consortia as part of the first substantive ESPA call. An earlier opportunity (December 09), as part of this same call, funded 18 Framework grants and 28 Project and Partnership Development grants, in preparation for this and subsequent calls for proposals. The list of current ESPA awards can be found at (<http://gotw.nerc.ac.uk/>).

**The ESPA Directorate will publish a series of supplemental electronic guidelines in support of the 2010 call addressing the ESPA Knowledge (Research) Framework and the ESPA Impact Framework.**

**All potential applicants are strongly advised to register with the Directorate at [www.esi.ac.uk/espa](http://www.esi.ac.uk/espa) to receive updates on the supplemental guidance and other frequently asked questions as they become available.**

## **4.0 Scope of the call**

ESPA intends to fund a portfolio of research projects and activities that are designed to address the core objectives of its scope.

### **4.1 Excellence with Development Impact**

All research programmes funded by this ESPA call **must deliver both development impact and excellent science**.

1. Delivery of development impact should entail:

- addressing an important development policy question, with special emphasis on poor people in least developed countries;
- producing an evidence base that is based on a thorough understanding of political, economic and ecological drivers of change, which decision-makers can use to change policy and/or formulate new and appropriate policy responses;
- improving existing and/or developing new and innovative tools, approaches, mechanisms and technologies for effective management of ecosystem services in the context of poverty alleviation, with special regard to addressing the political economy and ecosystem services perspectives;
- conducting research at scales that will lead to wider impacts on, and thus advances in, policy, decision-making and behaviour (e.g. national, regional, international); and
- delivering research that can change people's lives, understanding or behaviour: producing evidence that can generate influence and effect among academic and other users.

2. Delivery of excellent research should entail:

- a significant contribution to the advancement of theory and understanding of the issues (i.e. new and enlightening research questions, new kinds of evidence, new insights);
- theoretical and conceptual rigour in relation to research design, methodology and process;
- employing effective interdisciplinary approaches that provide opportunities for *real* integration across scientific disciplines, which may include new ways of interdisciplinary cooperation and system based approaches.

Research funded by ESPA must also involve equitable and ethical partnerships for co-production of knowledge between researchers in north and south, which also provide opportunities for southern capacity building.

## 4.2 The ESPA Research Framework

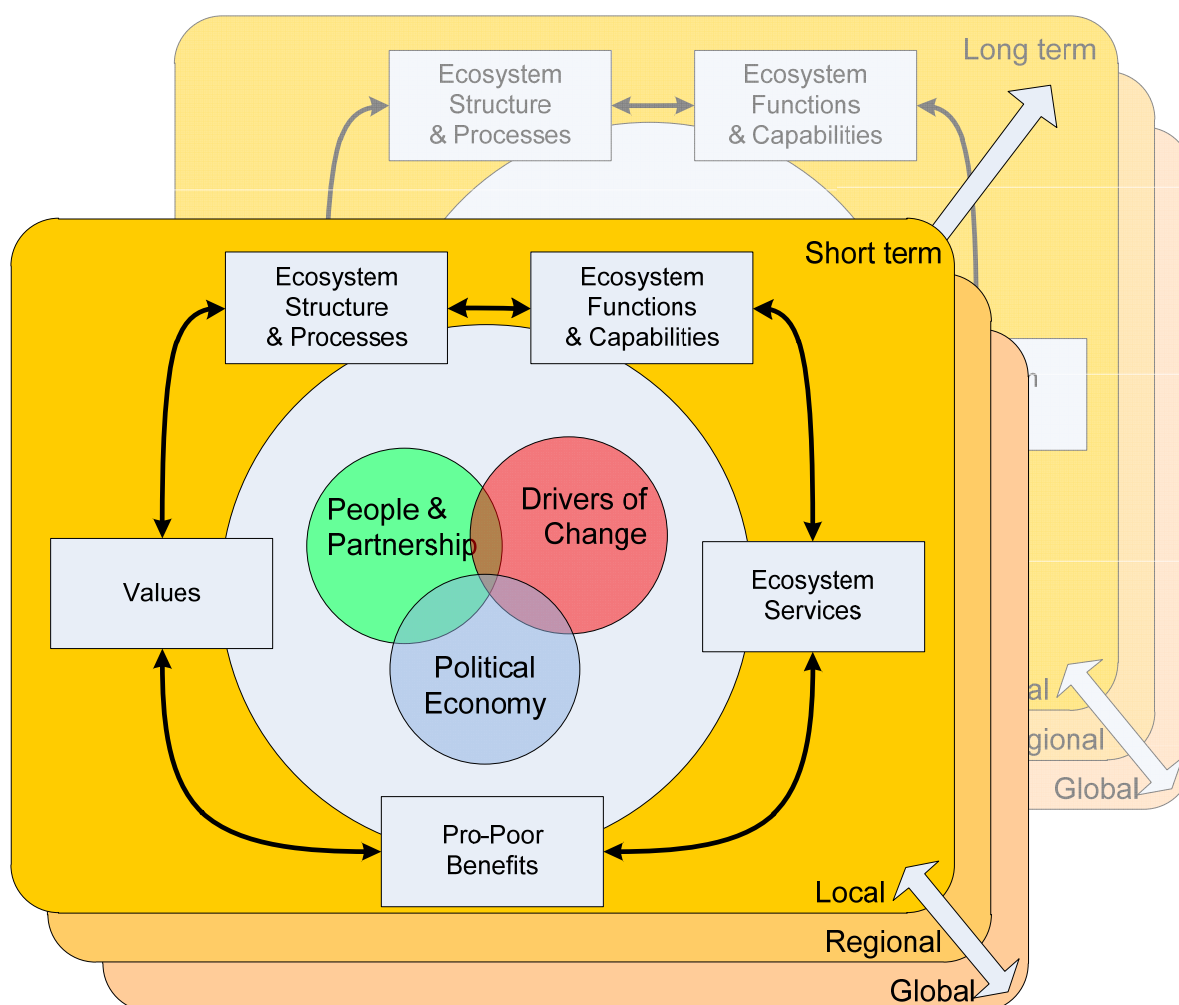
ESPA aims to take forward the findings of The Millennium Ecosystem Assessment (2005)<sup>1</sup> which concluded that 60% of ecosystem services studied are severely degraded or being used unsustainably. ESPA recognises that there are indications that, despite the obvious benefits that exploitation of the world's natural resources has delivered to society, these processes have resulted in large scale degradation of other key ecosystem services. There is growing concern that this degradation is now impacting on some of the world's poorest and most vulnerable groups. There is also a growing recognition that ecosystem service decline may already be affecting progress towards poverty alleviation, and also resulting in lost opportunities for wealth creation based on delivering new forms of value from ecosystem services.

To make progress on this challenging agenda, the ESPA programme—through the projects it supports—aims to undertake world-class research that delivers excellence with development impact. It will do this through the adoption of pioneering interdisciplinary approaches that link the natural and social sciences within an integrated framework or system. The ESPA Directorate will work with projects to develop a framework (or frameworks) for ESPA that describe the dynamic relationships between components of the system that together deliver benefits to support the livelihoods of the poor, their well being and poverty alleviation processes (see Figure 1).

While much excellent research exists within relevant disciplinary domains, what is particularly lacking is sufficient understanding of the **integrated system** involved in the provision of ecosystem goods and services and how to ensure it continues to deliver benefits that will contribute to poverty alleviation and sustainable growth. Also lacking is an understanding of how new and emerging challenges interact with all these variables, e.g. population growth, consumption patterns and climate change, which are making conditions more uncertain and bringing new forms of risk.

---

<sup>1</sup> . See [www.millenniumassessment.org/](http://www.millenniumassessment.org/)



**Figure 1** An indicative conceptual framework linking key components of a system describing the integrated pathways linking ecosystems and the means by which ecosystem services can deliver benefits to the poor. The ESPA Directorate will work with projects to help refine these concepts as part of the Knowledge Strategy for ESPA. A briefing note on the Knowledge Framework will be published by the end of October 2010 as supplemental guidance to potential applicants to this call

The research funded under this call must therefore strive to:

- strengthen understanding of the processes linking the full pathway of dynamic socio-ecological systems.
- identify and research critical knowledge gaps in these dynamic pathways adopting appropriate interdisciplinary approaches.
- identify critical thresholds in the systems and pathways which may have negative impact (e.g. irreversible change or tipping points) or positive impact (e.g. a critical threshold required to create opportunities for the poor to benefit from ecosystem services);
- improve knowledge of the environmental, political, social and economic drivers of ecosystem degradation, and how to better manage prevailing trends;
- develop a better understanding of the full value of ecosystem services from the perspective of a wide range of stakeholders, as well as new tools and methodologies for assessing these values;
- identify the drivers of sustainability, with a particular emphasis on finding positive incentives for sustainable management that leads to poverty alleviation.

Projects will need to bring together the best researchers from different regions of the world in partnerships that link disciplines, geographical areas and must challenge partners to work in new and truly interdisciplinary ways. They will be expected to demonstrate approaches based on equitable partnership and the ability to work flexibly, adapting to opportunities and challenges that may arise as ESPA develops, for example by working collaboratively with other ESPA funded projects.

The ESPA programme will not be able to support research on every ecosystem type in every geographic region, nor can projects focus only on individual component parts of the overall socio-ecological system in isolation. The knowledge generated must have more than local significance and improve our fundamental understanding of the full integrated system in order to enhance predictive and management capability.

In this way, ESPA seeks to deliver a step change in global understanding about the way that ecosystem services can contribute to poverty alleviation and sustainable growth—and to do so in a way that delivers the **evidence** that will equip decision makers and end users with what that they need to address the challenges identified by ESPA (see [ESPA Programme Memorandum](#)<sup>2</sup>) and those outlined in the Millennium Assessment, TEEB (The Economics of Ecosystems and Biodiversity) and in other relevant processes.

In summary ESPA projects must be able to deliver **research excellence** that is compatible with the ESPA Research Framework, working within one or more of ESPA's **Thematic Areas** (see section 4.4) to deliver new and/or cutting edge knowledge that addresses one or more of the key **Evidence Challenges** (see section 4.3). ESPA projects are also expected to demonstrate how they will work with relevant stakeholders in their regions to deliver **development impact**. In short, **ESPA Projects must be able to demonstrate both research excellence and a credible pathway to development impact**.

The ESPA programme also aims to deliver a whole that is “more than the sum of its parts” (i.e. individual projects). A Directorate has therefore been resourced to provide a range of activities that will build and support a global community of practice for ESPA ([www.espa.ac.uk](http://www.espa.ac.uk)). Individual projects will be expected to be active participants in these activities, working to build and grow the ESPA Knowledge and Impact Frameworks. These frameworks will embed new ESPA knowledge in the context of pre-existing studies and ongoing work supported by other related programmes; they will help to identify factors or options that are likely to affect the potential success of policies to contribute to poverty alleviation, while also identify evidence gaps that need to be addressed by future research. More information on the Directorate and its activities will be available by November 2010.

**The ESPA Directorate will publish a series of supplemental electronic guidelines in support of the 2010 call addressing the ESPA Knowledge (Research) Framework and the ESPA Impact Framework.**

**All potential applicants are strongly advised to register with the Directorate at [www.esi.ac.uk/espa](http://www.esi.ac.uk/espa) to receive updates on the supplemental guidance and other frequently asked questions as they become available.**

<sup>2</sup> <http://www.nerc.ac.uk/research/programmes/espa/resources.asp>

#### 4.3 Policy and decision making needs, evidence challenges and overarching questions

ESPA research must contribute to building a robust evidence base that will support improved policy and decision making to deal with the key challenges in managing ecosystem services in the context of poverty alleviation and sustainable growth.

ESPA has identified some of the critical evidence needs faced by policy and decision-makers, which currently prevent achievement of ESPA's goal. These critical evidence challenges are detailed below, and research funded under this call must demonstrate how it will serve to address these **evidence challenges and overarching questions and, if relevant, other policy and decision-making needs.**

- What values do ecosystem services hold and for whom?
- What drivers are degrading and/or preventing realisation of the values provided by ecosystem services, and how can we better manage prevailing trends?
- What are the most critical dynamics and processes that influence the provision of ecosystem services in the context of poverty alleviation?
- How can we safeguard ecosystem service values of particular importance to the poor?
- How can we manage ecosystem services sustainably, and realise more out of their values, for poverty alleviation and growth/the economy?

For more detail on the ESPA evidence challenges, see Box A at the end of this document.

#### 4.4 Themes

In order to contextualise these generic overarching questions, the research generated by ESPA must address the above overarching questions/evidence challenges but be conducted in context of the **ESPA thematic areas**

- Water: Impacts of climate variability and other changes on ecosystem services that underpin the water cycle and water security
- Forests: Forests, land use change and ecosystem services
- Coasts: Strengthening the management of coastal ecosystems to support sustained ecosystem service delivery for reduced poverty and vulnerability in coastal zones
- Health: Ecosystem services, disease ecology and human well-being
- Biodiversity: Biodiversity and ecosystem services - ensuring a sustainable flow of goods and services to enhance human well-being
- Political Economy: The political economy needed for sustainable management ecosystem services for poverty alleviation and sustainable growth

For an expanded explanation of these research themes, see Box B at the end of this document or the [ESPA Programme Memorandum](#)<sup>3</sup>.

---

<sup>3</sup> <http://www.nerc.ac.uk/research/programmes/espa/resources.asp>



## 4.5 Geographic regions

Research will be expected to be conducted in the following **geographic regions**:

- South Asia;
- Sub-Saharan Africa;
- Amazonia
- China;

Projects that support cross-regional / country-country research, engagements and partnerships across these regions are strongly encouraged, and/or such projects that have clear potential for replication across, or beneficial impacts upon, a wider geographic range in the developing world.

With appropriate justification, countries within other regions will also be considered, but only if the research is to be conducted in least developed or low income countries<sup>4</sup> (see Annex 3).

**Where research is to be conducted largely in a middle income country/ies, there must be clear justification for doing research in the selected country/ies**, with regard to at least one, but preferably more than one, of the following, i.e. whether the programme will assist in:

- advancing knowledge, evidence and impact in other least developed or low income countries, either within the same region or other regions;
- delivering global public goods benefits by, for example, advancing our understanding of local - global impacts and/or strengthening understanding of/evidence for global dimensions of ecosystem services/poverty alleviation;
- making serious and unique research advancements on a critical issue as a result of specific circumstances of the middle income country, that could not be made elsewhere.

This justification can be presented in the case for support as well as the impact plan, where there are clear impacts to be gained.

## 4.6 Research Uptake and Impact

ESPA aims to maximise uptake of its research outputs by early and on-going engagement and communication with policy makers, practitioners and decision makers (some of the key aspects of this are discussed in Section 4.1). The ESPA programme, including ESPA-funded research projects, will seek to identify and take opportunities to increase impact and uptake as they arise during or after the life course of the research.

### *Delivering Impact and Uptake through the research projects:*

In order to maximise likelihood of uptake, the funders of ESPA expect researchers to identify the potential impacts of their research on policy, practice and stakeholders and actively plan how these can be maximised and developed. Uptake and impact is usually best achieved when research questions are directed to a clear target audience and informed through stakeholder engagement.

---

<sup>4</sup> Country categories as defined by the Development Assistance Committee (DAC) of the OECD see Annex 3 or [http://www.oecd.org/document/45/0,3343,en\\_2649\\_34447\\_2093101\\_1\\_1\\_1\\_1,00.html](http://www.oecd.org/document/45/0,3343,en_2649_34447_2093101_1_1_1_1,00.html)

All ESPA research must be able to demonstrate strongly its developmental impact. As set out in the [ESPA Programme memorandum](#)<sup>5</sup>, this may be through generating knowledge that directly benefits ESPA's primary beneficiaries (poor and socially excluded people dependent upon ecosystem services living in developing countries). However, ESPA is more likely to generate findings that will contribute to sustainable growth at a wider scale. Delivery will be achieved through engaging and influencing intermediaries such as governments, regional organisations, NGOs, international policy makers and the private sector.

Researchers will be required to include a pathway to impact attachment as part of their research proposal. This document will need to present a credible plan that describes how new knowledge and evidence generated by a project could lead to significant and sustainable improvements in the well-being of poor people and progress towards poverty alleviation in one or more of the ESPA regions. Where possible, **applicants should demonstrate how their pathway to impact will address documented demand for new knowledge or evidence in one or more of the ESPA regions.**

ESPA researchers will also be expected to contribute to the wider ESPA programme knowledge sharing, uptake and communication activities in collaboration with the ESPA Directorate.

Further information on the pathway to impact document is given in section 8.6 of Part B.

#### 4.7 Capacity Building

A key objective of the ESPA programme is to enhance the capacity of southern (developing country) researchers to conduct, lead and use/communicate high quality ESPA-type interdisciplinary research.

ESPA-funded research should build capacity *through* the research process. **ESPA-funded research must therefore involve the meaningful, effective and appropriate participation of researchers and stakeholders from countries targeted in the research.** Proposals with no such participation cannot be accepted. This can be done through developing north-south and south-south partnerships in the research consortia.

Capacity building elements of the research should be an integral part of the programme, and should reinforce the main intellectual focus of the research project and the impact/uptake aspects of the project.

The funders of ESPA recognise that there are different types and levels of capacity, not all of which can be addressed through this programme. ESPA programmes will primarily focus on delivering technical capacity building, and to a limited extent organisational / institutional capacity building. Proposals with a more integrated approach that maximise existing comparative strengths of key players, building long term quality relationships and local ownership, are preferred.

*Technical Capacity Building* in ESPA will support building the technical capacity of individuals and teams to enable them to fulfil the project's objectives effectively and efficiently. As a result, researchers will be able to develop, implement and communicate high quality research. Activities that support this may include:

---

<sup>5</sup> <http://www.nerc.ac.uk/research/programmes/espa/resources.asp>

- technical training and skill development in research design and implementation, methodological and analytical skills, inter-disciplinary research approaches, and writing proposals and publications of research results
- building capacity for policy actors in developing countries to articulate their needs for new evidence from research (enhancing demand for research and evidence) and supporting researchers to develop skills to design and implement research that delivers the types of evidence required to influence policy and practice
- supporting professional development of new researchers, i.e. early career or researchers moving to a new field of study or discipline
- supporting co-authorship, particularly of peer reviewed publications
- enabling new researchers and other stakeholders to meaningfully participate in research discourse, networks
- developing interdisciplinary team working
- technical support and mentoring of researchers by senior professionals
- south-south peer review, networking and exchange among researchers

*Organisational / Institutional Capacity Building* in ESPA may be more limited but will support the development of an enabling institutional environment for research and its application where related to achieving a project's objectives. Approaches may include:

- development of North/South and South/South partnerships
- establishment of networks with greater interface between policy makers and researchers
- encourage more attention to quality assurance and raising standards of research

For background information on approaches to capacity building in research, please see: [DFID Research Programme Consortia Guidance Notes on Capacity Building](#)<sup>6</sup> and the [DFID How to Note](#)<sup>7</sup>. **Note: These documents are not specifically ESPA policy and where information and guidance issued in this Announcement of Opportunity differs from the general guidance in the above sources, the information in this Announcement of Opportunity should be adhered to.**

---

<sup>6</sup> <http://www.research4development.info/dfidguidancenotes.asp>

<sup>7</sup> [http://www.ukcds.org.uk/publication-Capacity\\_Building\\_in\\_Research\\_DFID\\_How\\_To\\_Note-366.html](http://www.ukcds.org.uk/publication-Capacity_Building_in_Research_DFID_How_To_Note-366.html)

## 5.0 Summary and checklist for applicants

Responding to ESPA's research agenda and framework will require truly interdisciplinary, systems-based approaches, designed to support both understanding and working with the non-linear dynamics, uncertainties, multiple dimensions and interrelationships of complex socio-ecological systems. It is therefore essential that all projects funded under this call are working to build the necessary bridges between environmental, social, and development researchers that will bring clarity to the **full pathway**: from ecosystem function, to provision of services, to understanding their value, and the links to poverty alleviation and sustainable growth. **Projects will not be funded under this call unless they encompass this full pathway analysis and demonstrate a clear and credible pathway to impact, contributing to ESPA's overarching questions and evidence challenges.**

In order to ensure that your proposal will deliver on ESPA's aims and objectives, there are number of generic principles and criteria that applicants should consider when developing their proposal. These are articulated through the questions in the checklist below. Note these questions will form the basis of the proposal assessment criteria and capture what has been described in section 4.

### Research Agenda

- Does the research clearly articulate what it is specifically seeking to investigate, i.e. does it clearly state a hypothesis/research question(s) and does it identify what evidence challenge(s) it is seeking to address?
- Does the research proposed have the potential to be **world-class**, intellectually innovative, and contribute to the advancement of theory and understanding of the issues proposed?
- Are the research design and **methodology** sound, theoretically and conceptually rigorous and appropriate to the research agenda?
- Does the research take a **holistic** view of ecosystem services, i.e. does it encompass research across an appropriate range of supporting, provisioning, regulating and cultural ecosystem services, and look at the trade-offs between them?
- Does the research have a clearly articulated link to **poverty alleviation** and/or sustainable growth, and an understanding of the political economy and social context?
- Does the research take a **systems based** approach and seek to address understanding the environmental, social and economic processes and dynamics and how they interact and impact on ecosystem services?
- Does the proposed research take into account the multiple **spatial and temporal scales** across which ecosystems and the services that they provide operate and are impacted?
- Are the proposed research methodologies replicable and will the proposed outputs be more **broadly applicable** and scalable outside of the target region of research?
- Have the researchers addressed the **disaggregation of data** (e.g. by sex and other socio-economic variables such as income, age, ethnicity, race) where appropriate and demonstrated why it is deemed inappropriate if this is considered the case.
- Does the project demonstrate an **awareness of existing relevant work** being carried out elsewhere (particularly activities funded by the ESPA partners, or where the UK has a stake) and the potential links to this work?

- Does the proposed project learn from and build on the outputs of relevant existing research, without duplicating work already done? Does the research target **under researched** issues and areas?

### **Approach to Interdisciplinarity and Quality of Integration**

- Does the project have a feasible plan to bring together and support the appropriate mix of researchers, e.g. environmental and social scientists?
- Is there evidence of plans to enable new and effective interdisciplinary collaborative working between the disciplines within the proposed partnership and opportunities for real integration across these disciplines?

### **Impact and Uptake**

- Does the research address an important development policy question, emphasising poor people in least developed countries?
- Does the proposal demonstrate how the research will contribute to the **evidence base** and tools that will help decision makers link ecosystem services more effectively to poverty alleviation and sustainable growth?
- Is the research proposed at a scale that will lead to wider impacts on policy, decision making and behaviour?
- Have the appropriate stakeholders/potential end users of the research outputs been identified and engaged during the development of the project? Are there appropriate plans made to ensure continued genuine engagement with relevant stakeholders throughout the lifetime of the project?
- Does the proposed project demonstrate who will benefit from the research, how they will benefit, and where the research will have impact on poverty alleviation?
- Are the impact plan and engagement processes proposed credible, achievable and appropriate to the research agenda?
- Where relevant, have links been built between formal and indigenous knowledge.
- Does the proposed project demonstrate the potential impact on the wider research community and beyond, proposing activities for knowledge dissemination and sharing?

### **Research Partnerships**

- Does the project involve equitable partnerships or collaborations for the co-production of knowledge appropriate to the proposed research project (south-south and north-south)? Are the benefits of the partnership elaborated and justified?
- Is there a plan for non-academic stakeholders to be actively involved in the co-production of knowledge?

### **Capacity Building**

- Does the proposed project provide appropriate opportunities to support building the technical capacity of southern (developing country) individuals and teams to enable them to fulfil the project's objectives?
- Is there a feasible plan for implementing the identified capacity building activities?
- Where appropriate are there plans to support broader institutional capacity building through the research process (e.g. developing N-S and S-S partnerships, researcher-policy maker partnerships; raising research standards)?
- Does the project include activities to encourage, support and promote the development of the skills needed to undertake interdisciplinary research?

## **Box A: Evidence challenges**

### **What values do ecosystem services hold and for whom?**

We need a more comprehensive understanding and estimation (qualitative, quantitative and aggregate) of the range of values provided by different ecosystem services and how these are interpreted by different stakeholders at different scales (e.g. local vs. regional). This implies a need for the development of better valuation methods for ecosystem services, e.g. methods that embed a better scientific understanding of ecosystem functions and processes into monetary and non-monetary valuation methods, and which can capture the range of stakeholder interests. We also need more effective valuation methods, that can assist decision-makers to deal with the multiple trade-offs implicit in the sustainable management of ecosystem services and poverty alleviation.

### **What drivers are degrading and/or preventing the realisation of values provided by ecosystem services, and how can we better manage prevailing trends?**

We need to know more about how to manage more effectively the range of drivers that affect the provision of ecosystem services, especially in context of new and emerging challenges (such as population growth and climate change). Decision-makers need the evidence to demonstrate impacts of drivers, as well as new tools that can deliver sustainable management of ecosystems and poverty alleviation. This requires more sophisticated investigation of how different drivers—both exogenous (such as international trade agreements) and endogenous (such as land accessibility)—affect ecosystem service provision and with what impact on the poor and poverty alleviation, and how these drivers can be moderated. More in-depth information is also required on what we can attribute to different drivers of change. For example, are national government policies driving forest degradation more than climate change or vice versa?

### **What are the most critical dynamics and processes that influence the provision of ecosystem services in the context of poverty alleviation?**

We need to strengthen understanding of the dynamic relationships between ecosystem structure and processes, function and provision of ecosystem services. These relationships are poorly understood for supporting and regulatory services, in particular, resulting in decisions based on unreliable assessments of value, and without appreciation of wider and future implications on continued provision of ecosystem services. There is also a critical lack of knowledge on ecosystem limits and tipping points and appropriate mitigation strategies, e.g. how much pressure can we exert before a system trips into non-linear and catastrophic change, which ecosystems are at greatest risk of reaching their limits or tipping points, with what impacts on services and poor peoples' livelihoods, resilience, well being and economies?

### **How can we safeguard ecosystem service values of particular importance to the poorest?**

We need to be more aware of the specific and unique nature of direct and indirect dependencies on ecosystem services for the poorest and most vulnerable people, and understand how these can be better managed (at any scale) for the benefit of the poorest, especially in the context of wider scale poverty alleviation and sustainable growth. This involves improving understanding of the relative roles that ecosystem services play as *inter alia* safety nets, in diversifying livelihoods and enhancing resilience and how these can be better supported in policy and practice, as well as what other options and responses are available to the poor when the ecosystem services they are dependent on are degraded.

**How can we manage ecosystem services sustainably, and realise more out of their values, for poverty alleviation and growth/the economy?**

We need to have better knowledge of alternative policy and practice options that will lead to a better balance between the provision of ecosystem services and poverty alleviation at a *macro* level (e.g. national, regional), as well as at wider geographic scales (e.g. across ecosystem and political boundaries). Decision-makers, for instance, require more information on how the full value of ecosystem services can be integrated into spatial and economic planning (e.g. national accounting systems) and how to overcome the barriers to this integration (i.e. political economy, governance, methodological, capacity). We also need better understanding of the new opportunities that ecosystem services might provide for large scale poverty alleviation and sustainable growth opportunities (e.g. markets for carbon sequestration), as well as on how to incentivise sustainable management of ecosystem services in the context of poverty alleviation.

## **Box B: ESPA Thematic areas**

ESPA has identified six thematic areas and four geographical regions as a focus for this first call. These themes have arisen out of a 2-year scoping phase for ESPA and represent some common findings of critical areas of focus from across the situational analyses.

The themes should not be viewed as separate, independent or stand-alone. There are many overlaps between and across the themes, and some themes (particularly the political economy) cut across all others. The themes are not an exclusive list and should not be viewed as mutually exclusive. Researchers should feel free to develop proposals that cut across and combine elements of some or all of the themes (and other issues, if appropriate) as long as they clearly justify how they address ESPA's key purpose and overarching questions.

### **Water: Impacts of climate variability and other changes on ecosystem services that underpin the water cycle and water security**

Major risks and uncertainties surround the extent to which climate variability, climate change and other changes could modify the water cycle in regions relevant to ESPA. For example, changing patterns of rainfall, snow and ice melt, could affect transfers of water through soils and ecosystems and hence river flows and groundwater recharge. Such changes present potential risks and benefits to society.

ESPA research could aim to look at ways and means of understanding these processes, risks and benefits better, and integrating that understanding more effectively into poverty alleviation and sustainable growth<sup>1</sup> processes, thus leading to increased water security in the context of climatic and other changes.

### **Health: Ecosystem services, disease ecology and human well-being**

Disease disproportionately affects the poor; and, in a vicious circle, tends to keep poor people in poverty. Other groups around the world (e.g. Gates Foundation, others) have explored various ways of reducing the burden of specific infectious diseases.

ESPA research could focus on how ecosystem dynamics and services, and their environmental and socio-economic drivers (e.g. climate change, land use, production and settlement patterns) regulate the emergence, spread, transmission dynamics and vulnerability to clusters of infectious and non-communicable<sup>1</sup> diseases in specific settings, and how these interactions may be managed to reduce the burden that they impose upon the poor.

### **Forests: Forests, land use change and ecosystem services**

In addition to direct provisioning services, such as timber and fuel, forests provide a host of regulating, supporting and cultural services which tend to be poorly understood and under valued. At the same time there is increasing attention on mechanisms such as REDD to generate revenue from forest ecosystem services such as carbon sequestration, but there are challenges inherent in implementing these schemes. There are clearly a range of science (e.g. carbon sequestration, water retention capacity) and governance (e.g. forest product certification, decentralisation, community versus concession based forest management) issues and trade-offs that need to be further investigated to create an enabling environment for sustainable management of forests, at a wider scale than at present.

ESPA research could look at ways and means of understanding forest ecosystem services better and strengthening understanding on how to integrate these more effectively into livelihoods, poverty alleviation and sustainable growth<sup>1</sup> processes, in the context of climatic and other changes.



**Biodiversity: Biodiversity and ecosystem services - ensuring a sustainable flow of goods and services to enhance human well-being**

Biodiversity underpins the delivery of many ecosystem services and good biodiversity management should help enable sustainable delivery of ecosystem services, thus enhancing poor peoples' livelihoods and increasing their resilience to climate and environmental change and natural disasters. Yet our understanding of the links between biodiversity and ecosystems services, poverty alleviation and growth processes remain weak.

ESPA research could look to develop better understanding of these links and how they could be better managed to delivers benefits for the poor, e.g. by strengthening resilience, enhancing adaptation, etc.

**Coasts: Strengthening the management of coastal ecosystems to support sustained ecosystem service delivery for reduced poverty and vulnerability in coastal zones**

Humans tend to be highly concentrated along coastal margins, resulting in undue pressure on many coastal ecosystems. The pressures are exacerbated by the tendency to value provisioning services (mainly through access to fisheries) above other ecosystem services. Consequent exploitation and short-term management often degrades other ecosystem services with high societal costs, e.g. loss of fisheries, flooding, reduced water quality, soil erosion, loss of future economic opportunities. In addition, coastal zones are frequently vulnerable to the impacts of environmental and climate change, which increase the vulnerability of poor people disproportionately.

ESPA research will increase our understanding of managing coastal ecosystem services to reduce poverty, vulnerability and increase resilience.

**Political Economy: The political economy needed for sustainable management ecosystem services for poverty alleviation and sustainable growth**

Vital ecosystem services, particularly supporting and regulating, are taken for granted and degraded because they are not seen to hold sufficient economic value and are not therefore factored into policy and decision making. Costs and benefits of the use and management of ecosystem services are often not equitably distributed. Furthermore, little is understood or explicit about trade-offs that may be made in governance and decision making, and how these may affect ecosystem functioning and livelihoods of the poor and poverty alleviation processes.