

Effectiveness of ecosystem-based approaches to adaptation: Critical review of current evidence, initial results for mountain regions

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Need for study

- ❖ Ecosystem-based approaches to adaptation are defined by the CBD as 'the use of biodiversity and ecosystem services **to help people adapt** to the adverse effects of climate change'.
- ❖ CBD COP 10 Decision X/33, including 'sustainable management, conservation and restoration of ecosystems, **as part of an overall adaptation strategy** that takes into account the multiple social, economic and cultural co-benefits for local communities'.
- ❖ Lots of **anecdotal** evidence available
- ❖ **Few reviews** of existing case studies/literature
- ❖ Need to **consolidate** broad range of literature that provides scientific evidence base
- ❖ Enable '**fully informed**' **decision making** on alternative adaptation approaches
- ❖ Nairobi Work Programme Informal Event, Bonn 2011 – '**Ecosystem-based approaches to adaptation roundtable**'
- ❖ **Compilation of information SBSTA report** (FCCC/SBSTA/2011/INF.8)



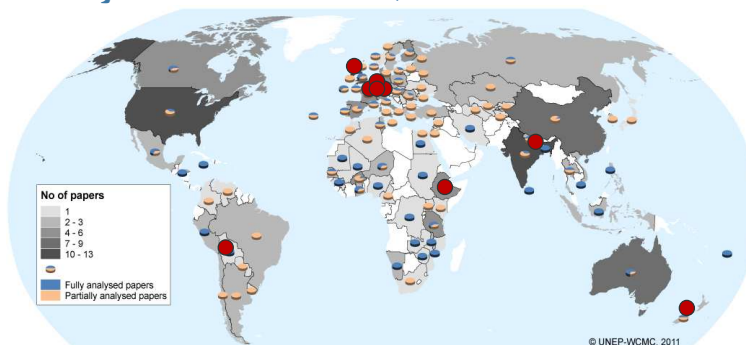
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Study

- ❖ **Systematic review** (www.environmentalevidence.org/Authors.htm) of state of the evidence for EbA effectiveness
- ❖ **Assessment framework** (to ask questions of the evidence and identify knowledge gaps)
- ❖ **Peer-reviewed published scientific literature** and grey literature – results available for former
- ❖ Specifically looked for **link to human adaptation** to climate change, climatic variability or extremes, or other natural hazards that could be linked to climate



Results – spread of evidence (field of study and location)

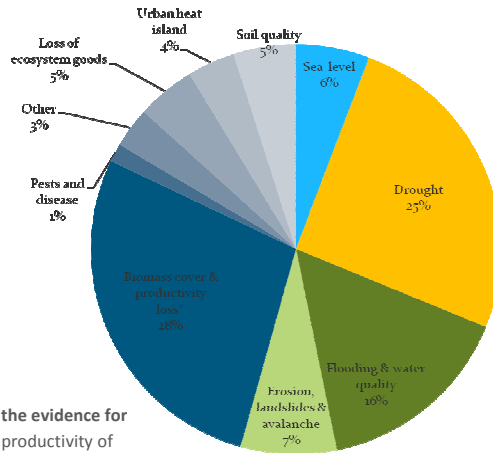


The boundaries and names shown and the designations used on maps do not imply official endorsement or acceptance by the United Nations Environment Programme or contributory organisations. Source: UN boundary base data

Geographic distribution and concentration of studies providing evidence for EbA



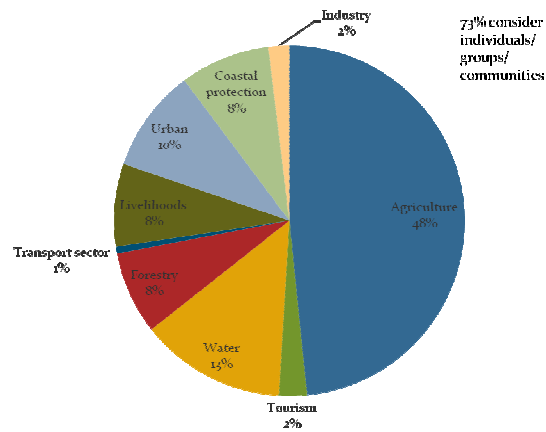
Results – climatic hazards / impacts



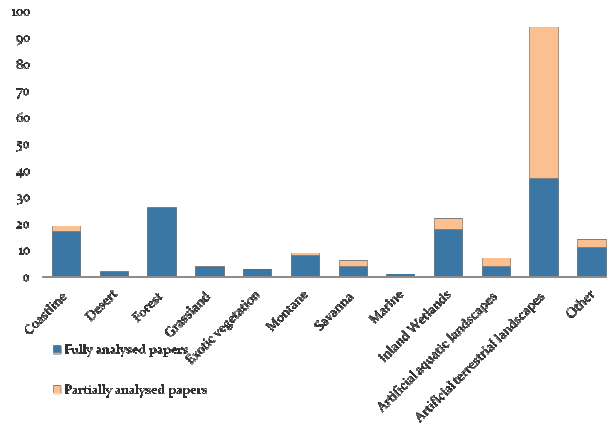
Main impacts addressed in the evidence for EbA effectiveness (*Loss of productivity of agriculture, fisheries, husbandry and forestry)



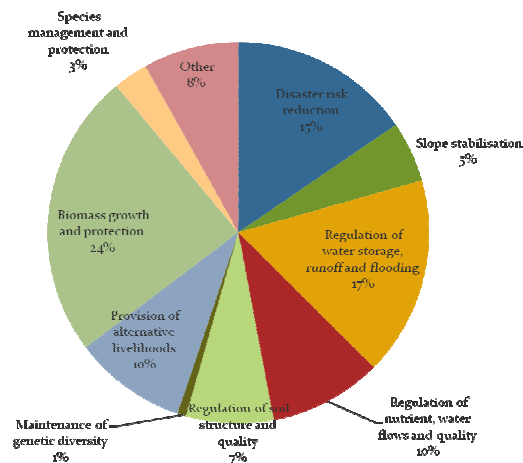
Results – targeted sectors / individuals



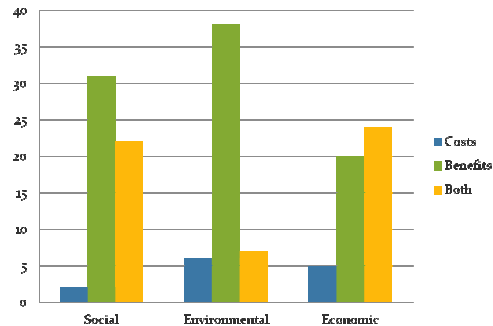
Results – ecosystems being used



Results – adaptation approach



Results – comparison with alternative approaches and associated social, environmental and economic costs and benefits



Results – intervention's success and limitations

Majority concluded that the evidence they were measuring had positive results

More than 50% of studies covered:

- ❖ biophysical thresholds
- ❖ boundary conditions
- ❖ and/or tipping points

Mountain subset: follows this trend (with little detail)

Key gaps in evidence base

- ❖ more **detailed comparisons between EbA and alternative adaptation strategies**, taking into account, social, environmental and economic considerations;
- ❖ discussion of **thresholds, boundaries and tipping points** across a range of EbA, in varying climatic zones;
- ❖ more attention to **costs as well as benefits**;
- ❖ more information on whether EbA is being **supported by local/national/international policies** and on the **success of EbA projects regarding instigating policy change**;
- ❖ greater consideration of the **temporal and spatial aspects of EbA effectiveness**;
- ❖ more **strategic monitoring** of existing EbA projects.



Same key gaps for mountain EbA?

Similar trends

- ❖ More attention to **costs, trade-offs and synergies** needed
- ❖ Little insight into **relationship with policy sphere and institutional effectiveness**
- ❖ More detail required on **thresholds, boundaries, tipping points (particularly latter)**
- ❖ Information minimal on **distribution of costs and benefits**



Next steps

- ❖ Complete grey literature review and analysis
- ❖ Partially analysed papers (traditional agriculture, urban green infrastructure, maladaptation) fully reviewed
- ❖ Biophysical literature
- ❖ Address research gaps
- ❖ Need for strategic monitoring
- ❖ Adaptation policies recognise importance of ecosystems to facilitate 'learning by doing'

