TESS
Transactional Environmental Support System

AT A GLANCE

Title: Transactional Environmental Support System

Instrument: Collaborative project (Small of medium-scale focused research project), FP7

Duration: 33 months

Start Date: 1/10/2008

Consortium: 14 partners from 10 countries

Project Coordinator: Aristotle University of Thessaloniki (Greece)

Project Web Site: www.tess-project.eu

Key Words: biodiversity, sustainable use, decision support, land use

THE CHALLENGE

For the past 50 years, subsidies and market forces have encouraged intensive use of a few crop species in Europe, homogenising land uses and causing biodiversity to decline. Over the same 50 years, human ability to predict has increased; we now use sophisticated formal assessment methods, including Environmental Impact Assessments (EIA) and Strategic Environmental Assessments (SEA) to constrain adverse developments. However, current formal assessment systems are bottlenecked by dependence on experts, hence their applicability is limited. Moreover, there are no comparable systems for the myriad informal assessments and decisions made daily by individual farmers, foresters, gardeners and other land managers that summate to impact much larger areas. Systems are badly needed to support and record these fine-scale local decisions, and to supplement with data at regional and national levels for making policy across Europe, for example on application of CAP and Structural Funding.

PROJECT OBJECTIVES

TESS is designing a decision support system that will make it easy for policy makers to integrate local knowledge into their decision making, while also guiding and encouraging local activities that restore and maintain biodiversity and ecosystem services. Our vision is to enlighten, encourage and empower local communities to support biodiversity restoration across Europe, through an internet system that unifies all available knowledge to guide decisions for the benefit of biodiversity and livelihoods.

METHODOLOGY

TESS first listed and analyzed government information requirements at national and intermediate levels and identified local information needs. It then created a database of models suitable for bio-socio-economic predictions and identified gaps in the supply of models and data, compared with the requirements for information. Case studies of local communities tested how best to meet local decision support needs in exchange for local monitoring that meets central policy requirements. Case studies also examined whether local monitoring (based on schools, NGOs, local community groups or individuals motivated by use of natural resources) can supply the extra environmental data that are needed. A survey of national government

and local practices, in the 27 EU member states plus Norway, Switzerland, Turkey and Ukraine, identified factors associated with effective application of formal assessments (EIA+SEA), together with priority areas for internet-based decision support and local monitoring to benefit livelihoods and biodiversity.

RESULTS

The central result is the socio-economic and technical design for a Transactional Environmental Support System (TESS) to support exchange of environmental information between central and local levels, as well as meeting commitments in many areas of the Convention of Biological Diversity. The design is being tested by implementing socio-economic design in a knowledge portal to continue beyond TESS (www.naturalliance.eu) towards the intelligent GIS that could exchange decision support for fine-scale mapping of decision outcomes. This approach will enable integration and delivery of formal environmental assessment systems with local knowledge and practices, through information and communication technologies, including GPS, remote/local sensing, and internet/mobile services. The aims of TESS are more ambitious than supporting central policy. The ultimate aim is to aid restoration and maintenance of biodiversity and natural resources by reversing the processes that caused so much degradation. Results also include recommendations and policy guidelines based on how biodiversity trends relate to different practices across Europe, addressed to those involved in the formulation, implementation, monitoring and evaluation of policies - at European, national, regional, and local levels.

RECOMMENDATIONS AND POLICY GUIDELINES

The following recommendations are proposed when considering how environmental and sustainability assessment should be carried forward through incentives and regulations.

1. The SEA and EIA Directives should be reconsidered with a view to their integration and formal application at the same level in all member states.

2. Member States should be required to give regular accounts of how their planning and other decision-making systems incorporate the principles of environmental and sustainability impact assessment in cases which lie outside the scope of formal SEA and EIA.

3. The Commission and Member States should develop environmental cross-compliance requirements to include assessments of significant changes in agricultural and forestry land-use and management, which are currently covered by the EIA Directive, while promoting the integration of biodiversity and other environmental information into single farm payment regimes.

Bird species are readily monitored by citizens

1km
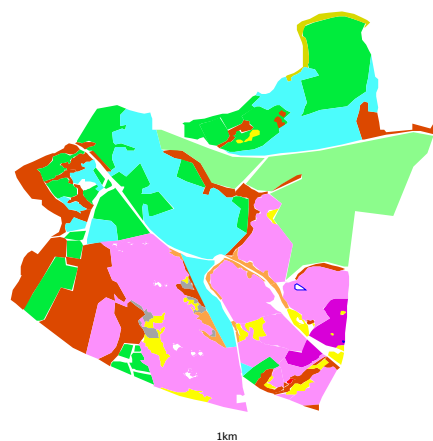
Habitats for deer management mapped by Scouts

4. Member States should increase co-operation with the European Environment Agency by ensuring that information gathered for formal assessments is shared with them and the wider public and by supporting efforts under the INSPIRE Directive and other initiatives to improve the quality and compatibility of environmental data generally.

5. The Commission and Member States should consider encouraging the Biodiversity Action Plan model of collaboration between stakeholders for biodiversity restoration to provide regional and local frameworks for information gathering and monitoring.

6. Steps should be taken to integrate knowledge and data provided by individual land-users into formal environmental decision making to support SEA's, EIA's and assessments for land-use planning decisions.

7. The design of an effective environmental information system needs to standardise and centrally collate a wide variety of ecological and socio-economic data that can be scaled for delivery at all levels. However, the precise data requirements need to be understood and, as far as possible, quantified in more detail.

8. In order to refine information needs for different statutory authorities and stakeholder groups further Pan-European survey work will be needed. This would be enormously facilitated if Eurostat were able to establish rigorous sampling frames across Europe for the groups of land-users identified by TESS and for local governments with specific functions.

9. Pending the creation of any widely available interactive decision support system, simple guides to what information is available at local level and what purposes it is suitable for would be of value for many users and would save both time and the expense of hiring consultants to extract routine information. Central co-ordination would assist the production of such guides.

10. The relevance of participation in wildlife-related activities by millions of EU citizens and the direct and indirect spending associated with these activities should be appreciated by policy-makers.

11. Accordingly Eurostat should be invited to carry out assessments of these activities across EU Member States by appropriate sampling methods, as has been practiced for a number of decades in the United States.

12. Biodiversity conservation policies need to take full account of the perceptions and attitudes of the people who live closest to wildlife and the countryside if their support for and active participation in conservation is to be secured. These attitudes should be regularly surveyed by the Commission, using the highly developed tools available to Eurostat.

13. Noting the rapid progress made in the development of digital tablets, the fall in prices and their dramatic uptake by the public over the last two years, European institutions, national governments and agencies should promote further experiments and training for local people in mapping for the monitoring and conservation of biodiversity and related socio-economic purposes.

14. Land-use changes are of fundamental importance for conservation policy. Those recorded by recent CORINE data merit urgent investigation. A locally-based recording and mapping system such as is being developed by TESS could rapidly feed information to higher governmental levels, enabling policy adjustments to be made as appropriate.

15. Conservation policy and practice should recognise the legitimate interests and, indeed, positive contribution of such users of land and water as recreational shooters and anglers. Stakeholder partnerships using monitoring and adaptive management will maximise the input of human and financial resources.

17. The case for a comprehensive decision support system for local land users to integrate environmental, social and economic goals is very strong. However, it will take substantial resources and time to achieve such a system in practice. There are some decision support tools available to use in the short-term but they are limited in application, coverage and the availability of languages other than English, with the consequence that much development work is needed to improve technology transfer in this area.

18. In developing internet-based advice and support for land managers using simple mapping tools, attention should be given to what works and is practical for them, using feedback and market testing and bringing together best practice guidance from a wide variety of sources.

19. Support should be given to the portal for ideas and knowledge exchange via

  (a) publicity aimed at land-users from governments and national associations,

  (b) data and best practice case study material from researchers and environmental institutions and

  (c) where feasible, appropriate finance from any quarter.

CONCLUSIONS

Overall TESS has been a thoroughly Pan-European collaboration. Although much more research about information needs and technical development of decision-support mechanisms is required, we are moving into a practical implementation phase.

In this we look forward to strengthening partnerships with existing colleagues and entering into new ones. In particular we are deeply appreciative of the offer of the Executive Director of the European Environment Agency at our final conference in Brussels on 25th May 2011 to provide a home for TESS in the longer term.

We remain convinced that environmental information needs to be gathered and used by ordinary citizens subject to safeguards about what is sensitive at an individual level and within a common EU-wide framework. We believe that such an approach will demonstrate that land-managers are not the problem but the solution to conserving and restoring Europe's biodiversity.

PROJECT PARTNERS	
Aristotle University of Thessaloniki	GR
Bournemouth University	UK
Natural Environment Research Council - Centre for Ecology and Hydrology	UK
Anatrack Ltd	UK
Ordenamento e Gestão de Recursos Naturais Ltd.	PT
Tero Ltd	GR
European Sustainable Use Specialist Group	BE
Federation of Associations for Hunting and Conservation of the EU	BE
Pro-Biodiversity Service	PL
Centre for Cartography of Fauna and Flora	SI
Szent Istvan University, Institute for Wildlife Conservation	HU
Institute of Sustainable Technology at Tallinn University of Technology	EE
Danube Delta National Institute for R&D	RO
WWF Turkey	TR