Multi-scale Integrated Earth Systems Model (MIMES) Tool Review

Ecosystem Services Tools

TABLES Project 2012: Mini reviews	
Guidance	*Using your experience and expertise, consider the following tasks in relation to the tool. It may not be possible to complete all tasks for each tool due to a lack of available information, the task not applying to the tool, etc. **Please note where this is the case by writing in the reason in the space provided**. Please use a maximum of 6 pages of A4 (excluding diagrams and appendices). **Your responses are required in the white spaces**.*
Task 1: Basic information	
Name of the tool	MIMES - Multiscale integrated Earth Systems model
Type of tool (list all that apply)	Mapping, modelling, decision, ecosystem services
Group members	1. Ron Corstanje
	2. Jim Harris
	3. Alister Scott
	4. Claudia Carter
Please provide a brief synopsis of the tool	MIMES is a multi-scale, integrated shell of models that determine stock and flows of selected ecosystem service models. These are bespoke models for particular cases. Mimes is a suite of applications, all delivered to end users through the Web. All applications have been designed with the help of professional usability engineers, and are accessible through a standard web browser. Amongst these tools and resources are a set effective tool to present stakeholders with scenarios and a suite of models that assess the true value of ecosystem services in a sophisticated and transferable system to allow ecosystem managers to quickly understand the dynamics of ecosystem services, how their services are linked to human welfare, how their function and value might change under various management scenarios. It will facilitate understanding of the context of spatial patterns of land use, they dynamics of value, and the scale at which information is available for estimating ecosystem services at various scales (e.g. watershed, national and global). MIMES will provide economic arguments for land use managers to approach conservation of ecosystems as a form of economic development. The model facilitates quantitative measures of ecosystem service effects on human well-being.

Task 2: Use of the tool

Position / Use	Stage	Currently used	Could be used
	Ideas	Y	Y
	Survey	Y	Y
	Assess		Y
	Policy / decision		Y
	Implement		Y
	Evaluate		Y

Please add any further comments here: Invest could in principal be used throughout the process

Task 3: Existing literature about the tool

Are you aware of any KEY policy and / or academic literature evaluating your tool?	Author & Date	Title Vol pages	Web link (if available)
	Boumans, R. and Costanza, R., 2007.	The multiscale integrated Earth Systems model (MIMES): the dynamics, modeling and valuation of ecosystem services. In C. VAN BERS, D. PETRY and C. PAHL-WOSTL, eds, *Global Assessments: Bridging Scales and Linking to Policy. Report on the joint TIAS-GWSP workshop held at the University of Maryland University College, Adelphi, USA, 10 and 11 May 2007.* GWSP Issues in Global Water System Research, No.2. edn. Bonn: GWSP IPO, pp. 104-108.	

Please add any further comments here:

Task 4: Your experience of working on the tool

Have you done any research/consultancy work on this tool in terms of its development, testing and/or evaluation?	N/A
Guidance	For Tasks 5-7, please also try to consider the **future** development and application of this tool in the TABLES project in your answers.

Task 5: Incorporating the ecosystem approach (EA) and ecosystem services (ES)

Using examples (from practice,	There are few examples of this in practice or research as of yet.

research or consultancy), explain how EA and/or ES are currently incorporated in/by the tool	
How **could** the ecosystem approach and/or ecosystem services be (further) incorporated within the existing tool?	The tool offers the potential for managers to view and interact with ecosystem services: enabling them to enact policy or react to changes within a landscape.

Task 6: Situating the tool within priority questions/criteria arising from the scoping interviews

Explain how the tool can be situated within the priority questions/criteria that arose in the scoping interviews	Priority question/criteria	Does your tool address/implement this question/criteria? *If yes, please explain how.*	
	Language and communication		
	1. Contribution to aiding the development of shared vocabulary within which principles of EA and ES can be shared with multiple stakeholders across built and/or natural environment	Yes, through visualisation.	
	2. Capacity of the tool to develop shared understandings of the many identities and values of places from the perspectives of multiple visitors, residents and businesses	N/A	
	3. Capacity of the tool to improve or enable engagement across different publics so avoiding the usual suspect problem	Yes through visualisation and scenarios.	
	Learning from experience/pedagogy		
	4. Capacity of the tool to help reveal and value 'hidden' assets that are not recognised by communities or publics that use them	The visual element enables ecosystem services and other assets to be mapped and visualised.	

5.	Extent to which tool is building on other tools or EA/ES progress	It enables managers to understand these concepts in reality and on the ground.
6.	Extent to which tool is locally derived or grounded or can be adjusted to closely reflect 'local' context. Is the tool suitable for an open source approach?	Yes, in principle it should be able to be adapted.
7.	Extent to which the tool is open to interpretation and application in a variety of forms (that reflect 'cultural' differences)	Yes, through the networks.

Developing and selecting tools

8.	Is the tool dependent on a specific funding source? How onerous is the application procedure? What are the chances of success?	No, some modelling background is needed in its application.
9.	Does skills development (essential or optional?) and support exist for the tool or is there a body to ensure the optimal and correct use of it?	N/A
10.	Extent to which current statutory hooks can be exploited by the tool or will benefit the quality or application of the tool (e.g. NNPF's duty to cooperate, SUDS, ecol. networks)	N/A

Informing resultant policies effectively

11.	Extent to which the tool informs or improves policies/decisions. What does the tool cover? (full range of positive and negative economic, social and environment impacts / tradeoffs?)	The tool supplies ecosystem service flows.
12.	How does the tool link into the planning system (applications and processes). At	None at the moment.

		what cost / extra burden?	
	Delivering management objectives		
		13. Suitability or capacity of the tool to assist with managing visitor needs and pressures within protected areas / the considered area? How?	The tool can help to visualise the landscape and therefore provide managers with necessary information on protected areas etc.
	Local ownership/new governance		
		14. To what extent can the tool assist in developing statutory plans (local and management plans) and improve ownership and use by publics?	In principle it should be able to visualize the delivery of ecosystem services.
		15. To what extent does/could the tool contribute to a new form of community governance in management of the environment?	N/A
	Improved tools: understanding flows, interconnections and spatial issues		
		16. Capacity to improve spatial understandings of the flows and interactions of various ecosystem services between sectors and at different scales	Very effective.
		17. Capacity of the tool to reconcile assessments of options and benefits across different scales (and sectors)	Very effective.
		18. Extent to which the tools is capable or can be manipulated to work across sectoral and administrative boundaries	It is a GIS based tool that can applied at a variety of scales.
		19. Extent to which the tool can handle data shortages and gaps (or is effectiveness considerably compromised?)	It will struggle.
		20. To what extent has/could the tool put landscape/nature	Can visualise benefits.

	conservation and designated species/sites on the radar (positively or resulting in resentment?)	
	Please add any further comments here:	

Task 7: A SWOT analysis of the tool

Referring back to the relevant policy and academic literature (listed in Task 3), plus your own expertise (listed in Task 4) and the way in which the tool is situated within the priority questions/criteria (listed in Task 6), please complete a summary SWOT analysis ensuring that each point is well justified	**Strengths** *(of the tool in delivering intended outcomes)* Helps incorporate a wider array of ecosystem and human considerations into decision making. Helps build on (rather than repeat) other's work by using parameter databases, algorithms, and analyses built into tools. Help as a guide through processes so you can move from data to decision making more quickly. Save you time and help you explore a wider range of alternatives by automating analyses or processes that occur repeatedly. Helps document what inputs and parameters were used in analyses and reasons that decisions were made. Helps build collaboration among diverse project participants by creating a forum where stakeholder groups learn about and need to account for others' goals and concerns.
	Weaknesses *(factors that detract from the tool's ability to deliver intended outcomes)* It may not be optimal to use an analytical tool if a project has highly constrained management options or analyses only need to be done a few times. There must be sufficient time and resources to gather the necessary data. Poor incorporation of tools into an Ecosystem Based Management (EBM) process can actually increase conflict.
	Opportunities *(consider opportunities for application of the ecosystem approach and services)* The tool could enable managers to better manage services: providing them with a tool to visualise the environment.
	Threats *(factors which negatively affect the tool and its outcomes)*

Threat	Seriousness (high, medium, low)	Probability of occurrence (high, medium, low)
Uncertain or bad data	High	
Technical expertise	High	

Please add further comments here:

Guidance	*Please now use the remainder of the document (box below) to make any general comments, observations or analyses of the tool*

Further comments	