



Policy pointers

Food security and good quality farmland are the key wellbeing factors for poor communities. Policies affecting their improvement and barriers to progress must be prioritised in government plans.

Policy on the ecosystem services that most influence people's wellbeing — water management and biomass energy — must support local people in improving their livelihoods.

Changes in the availability of ecosystem services are exacerbated by local communities' lack of access to technology and knowledge of alternative and sustainable practices.

Future land-use scenarios must enhance community wellbeing; these must also align national and provincial-level conservation concerns with rural communities' local priorities.

Making the links between woodlands and wellbeing: a multi-stakeholder approach

The loss of woodland in Mozambique is more than an environmental issue. Choices about land use — whether made locally, provincially or nationally — affect the availability of water, firewood, fertile land and other 'ecosystem services' delivered by woodlands. When these services underpin food security and routes out of poverty, what happens to woodlands becomes as much about people. But if the links between land use and the wellbeing of rural communities aren't recognised and agreed, how can policymakers balance the dual needs of human development and environmental stewardship? The ACES project brought local, provincial and national stakeholders together to identify how woodlands contribute to wellbeing, discuss why ecosystem services are changing, and look forward to future land use. We discuss the areas of agreement and difference that point to some necessary next steps.

As land use changes, Mozambique's woodlands are shrinking. The ecosystem services they provide are vital to support the wellbeing of poor rural communities, but the links between the services and wellbeing have been little understood at local, provincial or national level, and largely absent from policymaking on land use. The Abrupt Changes in Ecosystem Services and Wellbeing in Mozambican Woodlands (ACES) project has been set up to examine these links and generate shared knowledge that can be integrated into land use policy and practice (see Box 1).

In August 2014, ACES brought together a range of relevant stakeholders including communities, civil society, business and government, hosting: a national workshop (which sought both national- and provincial-level perspectives); a regional workshop based in Gaza province; and a number of local-level meetings to gather the views of rural communities. Using a participatory approach,

stakeholders at all levels sought to identify the most vital connections between wellbeing and woodland ecosystems, the drivers for change, and some potential ways to address them.

Finding common ground

As little is understood about the impact of woodland loss on rural wellbeing, the workshops' first priority was helping stakeholders to identify and rank the needs and priorities of poor rural communities, and to agree which ecosystem services are most necessary to meet them. This exercise, in which groups took either a national, provincial or local-level perspective, revealed some promising common understanding:

- **Food security and good quality farmland** (including soil, water, seed and management) were agreed by all groups to be the most important *factors* of wellbeing.

- **Water** management infrastructure was unanimously identified as the key ecosystem service *influencing* wellbeing.
- **Charcoal** rated highly at provincial and local level and **firewood** at a local level in terms of *influencing* wellbeing.

From the latter we can infer that biomass energy is important for rural communities, representing a source of employment and cash income.

These encouragingly cohesive results focus attention clearly on five relevant national policies, which ACES will lead on analysing further to

determine how far they support wellbeing by creating opportunities for local land users to improve their livelihoods. They are:

- **Land policy** that determines access to good arable land which can deliver a high yield in the context of low-input agriculture
- **Agricultural policy** that determines the availability of support services in terms of know-how, access to technologies, financing mechanisms and markets
- **Water policy** that defines access to clean drinking water and the development of infrastructure for water management, including irrigation
- **Forest policy** that defines licensing and management for charcoal and firewood production

Successful future woodland management requires policy that is understood by those that will be most affected

- **New and Renewable Energy strategy** that identifies development of biogas, solar, wind, hydropower as priorities to reduce the pressure that biomass energy places on forests.

Identifying drivers of change

The national, provincial and local-level stakeholders initially demonstrated some unified understanding as they identified and ranked direct drivers of change in ecosystem services.

Both man-made and natural drivers were agreed to be at work, with forest fire unanimously identified as directly affecting the availability of ecosystem services. The use of fire, for example in unsustainable subsistence agriculture practices and the production of charcoal, can broadly be ascribed to lack of access to technology, information and finance for more productive and efficient use of land resources.

The drivers for change prioritised by the national and provincial stakeholders were deforestation, erosion, droughts and floods, representing their more macro environmental concerns.

In contrast, the local group, which included farmers and charcoal producers, prioritised the unsustainable use of forests. This divergence perhaps reflects the local groups' experience of carving out a livelihood from the forests.

Hitting barriers: the need for know-how and dialogue

The value of a participatory approach was illustrated when stakeholders explored interventions that might improve availability of the ecosystems services that support wellbeing. A wide range of possible actions was identified (see Table 1), and the divide between local preferences and the national and provincial view is notable. The latter prioritise the overarching knowledge-based tools of conservation agriculture, environmental education and law enforcement, while the local groups focused on more immediately-felt improvements to local infrastructure and institutions, including better roads, access to markets and water management infrastructure such as dams and dikes.

This divergence highlights a key barrier to mutually agreeing methods for ensuring woodlands continue to deliver wellbeing: the limited access poor rural communities have to knowledge and technology. For example, the preferred national and provincial interventions to address fire involved conservation agriculture know-how and the use of technology that is currently unavailable to rural communities, such as cold fire techniques, soil and water management, and use of improved seed under different cropping systems in order to increase yields.

Box 1. ACES in brief

Land use may change gradually, but the knock-on effects for rural livelihoods can feel sudden, taking communities by surprise. The ACES project seeks to understand the social and ecological processes driving change.

ACES has three project sites — Niassa, Zambezia and Gaza— and works towards five core objectives:

- Design a framework to analyse the relationships between land use, ecosystem services and wellbeing that are most relevant to stakeholders, from poor communities to policy makers
- Collect data and analyse these key relationships at three representative sites
- Formally test hypotheses about the relationships, and the possible causes of abrupt changes to the availability of ecosystem services and wellbeing
- Create realistic future scenarios for land use, in which good management that supports wellbeing and ecosystem services also helps reduce poverty
- Build communities with the skills to turn this new information into better land use policy and practice.

For further information, see <https://miomboaces.wordpress.com>.

Other nationally and provincially favoured interventions, such as the improvement of law enforcement (for example, to ensure licensing of biomass energy production) and forest management planning, would also require significant investment in local-level knowledge on legislation and sustainable resources management, respectively. National and provincial-level institutions present at the workshops acknowledged this and suggested an educational programme on environmental awareness, encompassing a curriculum and less formal teaching methods. Some aspects of the programme will be implemented by government extension services (through the ministries of education, agriculture, and environment) as well as by NGOs and academic institutions at different levels.

Looking to the locally identified solutions, national and provincial stakeholders also recognised the need to establish local infrastructure for water management in order to meet the need for clean drinking water and opportunities for irrigation when rainfall is erratic.

The remedial actions suggested to address the direct drivers of change in the availability of key ecosystem services again demonstrate the need to scrutinise existing national policies, and highlight the importance of:

- **Implementing agriculture policies** that promote sustainable agriculture and local access to inputs and extension services
- **Enforcing legislation** on the sustainable management of forests (including the national Reforestation Action Plan that already identifies establishment of forest plantations for biomass energy as a priority)
- **Enforcing water policy** relating to management infrastructure.

The lack of overlap between locally identified solutions and those favoured provincially or nationally suggests a second significant barrier to natural resources policy-making that supports community wellbeing: a disconnection between views at national level and local realities. Successful future woodland management requires policy that is understood and supported by the people that will be most affected, formulated through dialogue with them. The good news is that both provincial and national level institutions expressed interest in training for the participatory process which enables fuller local engagement.

Table 1. Stakeholder-ranked actions to address ecosystem availability

Intervention to improve the availability of ecosystems services to support wellbeing	National workshop			Provincial workshop (Gaza)	Local meetings
	National perspective	Niassa province perspective	Manica province perspective		
Reforestation					
Awareness raising, environmental education and training					
Law enforcement					
Conservation agriculture					
Construction of dykes, small and large dams					
Extension of animal husbandry					
Cultivation along contour lines					
Compliance with agriculture technical norms					
Improved bee hives					
Opening of firebreaks					
Sustainable forest management					
Integrated pest management					
Village organisation and meetings					
Improved roads					
Access to markets					

Wider context for land-use scenarios

To start developing realistic scenarios for land use that can enhance the wellbeing communities derive from ecosystems services and alleviate poverty, stakeholders needed to consider the indirect drivers of change. These are the external social, political or economic factors that can make or break the success of an approach to fair land use.

In four groups (one taking a national perspective, the other representing particular provinces) workshop participants discussed which indirect drivers of change to wellbeing and ecosystems:

- Are most important
- Are most uncertain (meaning uncertainty over the probability that they will happen).

The groups broadly agreed on the two most important indirect drivers of change when developing scenarios for future land use: effective decentralisation (meaning more community empowerment and participation in decision-making about managing natural resources); and effective implementation of legislation.

Effective decentralisation processes should include responsibilities, power, and human and financial resources. Decentralisation is already enshrined in the government land, forestry and water policies — these provide for devolution of resources to local communities and create local level institutions such as natural resource management committees and water councils. The government uses a decentralised planning process involving technicians across different sectors, with development decisions and participatory planning processes taking place at district level. However, there is scope to strengthen the consultation process to ensure plans do reflect the aspirations of local people.

Legislation is implemented, but there are opportunities for improvement especially in dissemination to local land users and enforcement. Discussions highlighted several issues that any land-use scenario would need to consider, including a lack of capacity to monitor environmental management plans carried out by large businesses and investors. In addition, participants stressed that while investments are being made with the aim of improving macroeconomic indicators (such as creating employment, generating exchange revenue and possible improvement of social infrastructure), this is not delivering benefits to poorer communities – the high growth rates that characterise Mozambique's economy are in fact linked with growing inequality and poverty.

This latter point is important to analyse as the ACES project moves forward, as development resulting from the use of productive, high-value ecosystems services do not necessarily contribute to the improved wellbeing of rural people. Can this inequitable scenario change if Mozambique's existing progressive legislation is fully implemented? At the workshops, the groups discussed the gap between good legislation and real positive impact on ecosystems services and wellbeing. They highlighted the need for investment in an expanded network of extension services to ensure that land users get access to the knowledge, technologies and means to effect sustainable land use that both enhances wellbeing and maintains ecosystems services.

If there was general consensus about the most important indirect drivers of change to consider in land-use scenarios, this was lost when looking at which of the indirect drivers were most uncertain. Stakeholders drew up a long-list of nearly 20 indirect drivers of change in wellbeing and ecosystems with a high level of uncertainty attached. The wide list covered the redistribution of wealth, to the reduction of poaching, to the increase of erosion. To gain some clarity around the

uncertain drivers, ACES will facilitate a participatory process, working with government, civil society and communities to model future scenarios for sustainable land use policy and practice that can also help people move out of poverty.

Initial conclusions and next steps

The 2014 workshops demonstrated the potential for the needs of poor communities to shape forest policy at provincial and national levels. Together, stakeholders found a common understanding of the most important factors for rural wellbeing, the ecosystem services that deliver them, and some of the drivers for change.

From this, we can make some initial conclusions about the policy developments needed to better support rural communities that rely on woodland ecosystem services:

- Improving agricultural practices that introduce conservation agriculture (to increase yields and improve food security) by enhancing local access to knowledge and technology
- Improving water management infrastructures that supply clean drinking water and water for productive activities such as irrigation and rearing cattle
- Identifying and creating infrastructure for energy sources that reduce reliance on biomass energy
- Improving environmental education, transportation infrastructures (including roads) and access to markets to support routes out of poverty
- Strengthening policy related to decentralisation and the application of legislation.

An ACES report analysing these policy areas, and looking at the levels of implementation will be published shortly.

For the next research stage, ACES will bring together local, provincial and national stakeholders in the provinces of Niassa and Zambezia in July 2015. There, stakeholders will further interrogate and develop thinking on the links between ecosystems services and wellbeing and collaboratively develop land-use scenarios. In August 2015, another national workshop will enable stakeholders to finalise the definition of the factors affecting wellbeing and ecosystems services, including drivers and uncertainties.

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