

Scenarios and solutions

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Bruce Campbell

It doesn't matter whether you're an individual planning how to feed your family, a politician thinking about the welfare of the poor, or a conservation agency wondering how to preserve wildlife, the decisions you make must be guided by how you see the future. What if I switch from shifting cultivation to permanent cultivation? What if we encourage oil-palm development? What if we increase the anti-poaching patrols to protect the elephants?

You could start by feeding information into a model and creating a range of 'future scenarios'. During the past two years, CIFOR has conducted participatory modelling exercises in the Congo Basin, Ethiopia, Indonesia and Vietnam. "By building and using models, we have been encouraging people to create visions of the future," explains Bruce Campbell, the director of CIFOR's Livelihoods Programme. "This isn't about predicting the future. It's about opening people's eyes, stimulating discussion and looking for solutions."

The way the process works has varied from site to site, but all the modelling exercises have used STELLA software and most have begun with a workshop, facilitated by CIFOR and involving a broad range of stakeholders. In Malinau District, Indonesia, modelling was used to explore the possible impact of oil-palm development on the

forests and local economy. In the Congo Basin, it was used to track the impact of the use – and abuse – of forestry taxes on local development and conservation. In Vietnam, modelling helped government officials to devise policies for dealing with communities living in a protected area.

The models were originally designed to be quickly built, used for brainstorming, then binned. They were 'throw-away' models constructed from empirical data, information from the scientific literature, and from the views and perceptions of those involved in the process. "You'd think of all the things you're interested in, such as population, poaching, forest cover, agriculture, tourism, whatever," explains CIFOR researcher Marieke Sandker, "and then you would start looking at what would happen if you altered certain parameters or introduced new ones."

Sandker points out that over time the models have become more than just discussion tools. Instead of trashing them, they are now used to improve communications, for example between local communities and donors. They can also be used as a negotiating tool, for example to establish the level of payments communities receive for providing environmental services, such as carbon sequestration.

The Malinau study, conducted in early 2007, provides a good example of how the modelling process works. The local government had been discussing the possibility of converting half a million hectares of forest to oil-palm plantations to take advantage of the biofuels boom. But what would the impact be? The modellers – CIFOR researchers, local foresters, government officials – opted to explore three scenarios over a 40-year period. The first was business as usual: in other words, no oil palm. The second was the clearance of half a million hectares of forest, but without the follow through of planting oil palm – an all-too-frequent occurrence in Indonesia, where oil-palm development is often used as a pretext for felling valuable timber. The third was the establishment of half a million hectares of oil palm.

The models suggested that oil-palm development would yield substantial economic



Bruce Campbell and participants at the Vietnam workshop on STELLA modelling. (Marieke Sandker)

benefits. But there was a downside: massive immigration would turn the local Dayaks into an ethnic minority; Punan hunter-gatherers who harvest non-timber forest products would lose their livelihoods; and considerable expanses of the forest would be cleared.

The researchers then asked whether eco-tourism, among other things, could provide an economic substitute for oil-palm development? “For 20 years, conservationists have been promoting eco-tourism in Malinau,” explains Sandker, “but our modelling suggests that this is never going to yield significant profits for the whole of Malinau.” To compete economically with oil palm, there would need to be 200,000 tourists a year. At present, there are less than 40. Findings such as these, says Sandker, provide a reality check for conservationists.

Modelling processes such as these have some obvious weaknesses. In Malinau, for example, it was possible to put a cash value on oil-palm development, but not on the increase in soil erosion and the water pollution which would result from the development. If some of the assumptions were wrong – for example, about the suitability of land for oil palm – then the predictions would be questionable. CIFOR’s use of modelling, in Indonesia and elsewhere, revealed other drawbacks as well. Models were sometimes too complicated, or failed to bring out new information or insights, and in some areas the level of participation among some stakeholders was disappointing.

However, Campbell believes the benefits of using these models far outweigh their weaknesses. In some areas, the models have not only influenced the behaviour of those involved in the process, they have also helped to shape the opinions and policies of decision-makers “We’ve also found that the modelling process forces people to climb out of their disciplinary straitjackets,” explains Campbell. “It encourages them to start looking at issues and problems in a different way, and it challenges their world view.” Conservationists, for example, are forced to start thinking about the impact of their activities on local livelihoods.

Modelling exercises facilitated by CIFOR have had a considerable impact. In Malinau, the spectre of mass immigration, fuelled by oil-palm development, tempered the district government’s enthusiasm for growing biofuels and spurred an interest in investigating schemes that involve payments for environmental services. In Ethiopia,



Woman carrying bamboo for use as firewood in the buffer zone of Cat Tien National Park, Vietnam. (Widya Prajanthi)

the results encouraged the government to modify a new law about forest management. In Vietnam, a modelling exercise encouraged the Wildlife Department to consider payment schemes which would encourage villagers to cease cultivating the land within the core area of a national park. In Cameroon, the modelling, conducted with WWF, helped to highlight the way in which local bureaucrats were siphoning off forestry taxes, to the detriment of local people. This was one of several factors which led to the local mayor losing his position.

Jeff Sayer, CIFOR’s first Director General, has been introducing these modelling techniques to field staff of WWF and the World Conservation Union (IUCN). Most of the big conservation organisations, he says, are now trying to address conservation at the scale of large landscapes. “If you want to reconcile the interests of all of the different groups who have a stake in these landscapes, a good first step involves getting them to share their visions of the future,” says Sayer. “Modelling is a brilliant way of doing this. Once you get all the actors on the same wavelength, you can help people work out how development needs can be met without destroying conservation values.”