

Improving the **Balance** between **Rainforest Conservation** and **Poverty Reduction**

Attempting to conserve forests in developing countries without addressing the needs of poor local people is both futile and inappropriate. Finding ways to strike the appropriate balance between the legitimate interests of development and environmental concerns is a pressing challenge.



This poster summarizes key results from nearly ten years of empirical research in the humid tropics by the Alternatives to Slash-and-Burn (ASB) Programme. The results show that while occasionally it is possible to conserve tropical forests while reducing poverty, more often these two objectives conflict. Without action to balance the tradeoffs and provide tangible incentives, tropical forests will continue to disappear. The ASB Matrix is one tool that can help make it easier for decision-makers to line up the facts and make choices that are good for people and nature.

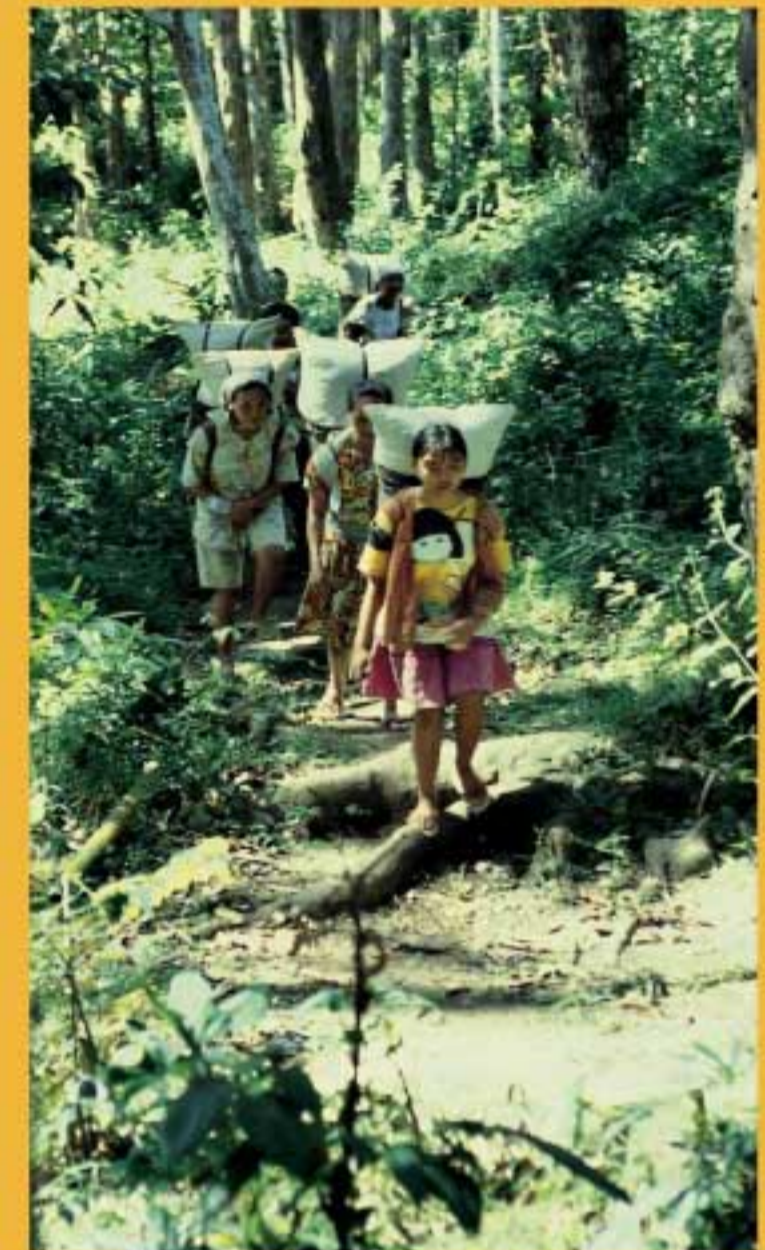
Many concerns, conflicting interests: everyone in the world wants something from tropical forests

Forest dwellers are losing their land to migrant smallholders, who clear small amounts of forest to earn a living by raising crops and livestock. Both these groups tend to lose out to larger, more powerful interests—ranchers, plantation owners, large-scale farmers or logging concerns—whose aim is to convert large areas of forest into big money. Outside the forests is the international community, who wish to see forests preserved for the carbon they store, which would otherwise contribute to global warming, and for the wealth of biological diversity they harbour.

Promising Land Use Options

In areas where productivity of the natural resource base has already sunk to low levels, land use options which restore ecosystem functionality and bring economic benefits can contribute to both development and environmental objectives.

- In such cases where forests are converted, AGROFORESTS often represent the 'next best' option for conserving biodiversity and storing carbon, while also providing attractive livelihood opportunities for smallholders.
- A mixed LANDSCAPE MOSAIC represents an especially attractive option in cases like the Western Amazon of Brazil, where no single system offers a reasonable compromise between different objectives.



Forging a 'Middle Path' of Development in the ASB Sites

ASB studies in INDONESIA and CAMEROON have revealed the feasibility of a 'middle path' of development involving smallholder agroforests and community forest management for timber and other products. Such a path could deliver an attractive balance between environmental benefits and equitable economic growth.

Sumatran rubber agroforests and their cocoa and fruit counterparts in Cameroon offer levels of biodiversity which, though not as high as those found in natural forest, are nevertheless far higher than those in monocrop tree plantations or annual cropping systems. Like any tree-based system, they also offer substantial levels of carbon storage. Crucially, technological innovations have the potential to increase the yields of the key commodities in these systems, thereby raising farmers' incomes substantially.

The BRAZILIAN AMAZON, in contrast, presents much starker tradeoffs between global environmental benefits and the returns to smallholders' labour. Here the most commonly practiced pasture-livestock system, which occupies the vast majority of converted forest land, is profitable for smallholders but entails huge carbon emissions and biodiversity loss. In other words, the land use alternatives that are attractive privately are at odds with global environmental interests. Only a radical overhaul of the incentives facing land users—including smallholders—could change things.

THE ASB MATRIX - A tool for understanding the tradeoffs

ASB Summary Matrix: Forest Margins of Sumatra

Land use	Global Environment		Agronomic sustainability	National policymakers concerns		Adoptability by smallholders
	Carbon sequestration	Biodiversity	Plot-level production sustainability	Potential profitability (at sector prices)	Employment	Production incentives (at private prices)
Description	Aboriginal Tree average (tonnes/ha)	Aboriginal Plant species standard per ha	Overall rating	Relative to best ASB site	Average labor input (days/ha)	Returns to Labor (US\$/day)
Natural Forest	306	120	1	0	0	0
Community based forest management	136	100	1	11	0-2	4-77
Commercial logging	93	90	0.5	1080	31	0-78
Rubber agroforests	89	90	0.5	506	111	2-86
Oil palm monoculture	54	25	0.5	1653	108	4-74
Upland rice / bush fallow rotation	7	45	0.5	(117)	25	1-23
Continuous cropping (degrading to heathland)	2	15	0	28	98	1-78

Decision makers need accurate, objective information. ASB researchers have developed a matrix that sets out the conflicting interests and possible land uses, making it easier to weigh up the difficult choices and negotiate tradeoffs.

None of the land use systems that replace natural forest can match it in terms of biodiversity richness and carbon storage. However, these systems do vary greatly in the degree to which they combine environmental benefits with contributions to economic growth and poor peoples' livelihoods.

In the ASB matrix, natural forest and the land use systems that replace it are scored against different criteria reflecting the objectives of different interest groups. ASB researchers have filled in this matrix for representative benchmark sites dotted across the humid tropics. At each site, the researchers have evaluated land use systems both as they are currently practised and in the alternative forms that could be possible through policy, institutional and technological innovations. The matrix allows researchers, policymakers, environmentalists and others to identify and discuss tradeoffs among the various objectives of different interest groups.

The direction of change in land use systems determines the environmental consequences.

For example, if farmers replace unsustainable cassava production with an improved rubber agroforest, they help restore habitats and carbon stocks. But if such a system replaces natural forest, the environment loses.

Intensification of land use through technological change has great potential to increase the productivity and sustainability of existing forest-derived systems, thereby raising incomes. By the same token, however, these higher incomes attract more landless people to the agricultural frontier in search of a better living. Therefore, policy measures intended to encourage intensification will need to be accompanied by measures to protect those forest areas that harbour globally significant biodiversity.

