

world development report **2010**

*Development and
Climate Change*



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BOX 3.5 *Product and market diversification: An economic and ecological alternative for marginal farmers in the tropics*

Tropical areas face great challenges: the persistent poverty of rural populations, including indigenous peoples; the degradation of natural resources; the loss of biodiversity; and the consequences of climate change. The volatility of prices for tropical products on the international markets also affects local economies. Many farmers around the world have their own survival mechanisms, but efforts to improve livelihoods and address the anticipated impacts from climate change will require innovative institutions and creative methods for income generation and security.

One strategy that shows great potential for climate-smart development is agricultural and agroforestry product diversification. This strategy allows farmers to feed themselves and maintain a flow of products to sell or barter at the local market despite droughts, pests, or low prices on international markets.

Consider small coffee farms in Mexico. In 2001 and 2002 a dramatic drop in the international price of coffee pushed coffee prices in Mexico below production costs. To rescue farmers, the Veracruz state government raised the price of coffee produced in the area by establishing

the “designation of origin of Veracruz” and by providing subsidies only to farmers cultivating high-quality coffee in areas more than 600 meters above sea level. Because this policy would hurt thousands of producers living in the low-quality production area below 600 meters, the government invited the Veracruzana University to find alternatives to coffee monoculture.

The diversification of productive low-land coffee lands found financial support through the UN Common Fund for Commodities, with the sponsorship and supervision of the International Coffee Organization. It started in two municipalities with a pilot group of 1,500 farmers, living in remote communities with 25–100 households.

Many of the farmers had traditionally produced coffee in a multicrop system, providing the opportunity to test in each plot different configurations of alternative woody and herbaceous species of economic and cultural value: Spanish cedar and Honduras mahogany trees (for wood and furniture), the Panama rubber tree, cinnamon, guava (as food and phytomedicine), *jatropha* (for food and bio-fuel), allspice, cocoa, maize, vanilla, chile,

passion fruit, alongside coffee. All trees, herbs, and produce were locally familiar, except the cinnamon tree. There is a potentially large market for cinnamon, which is usually imported. The farmers are now learning which practices and configurations hold the best production potential in this innovative diversified system.

A cooperative company pooled different agricultural products in groups with similar market values but with different exposures to climate, pests, and market risks. Early results indicate that this bundling seems to work well, improving livelihoods and increasing the resilience of the communities. The company has been able to sell all product types, several of them at a better price than before the project started. And in the first two years the project introduced a million native timber trees.

Locals report that the practices have reduced erosion and improved soils, benefiting the surrounding ecosystem while buffering against potential future flooding associated with climate change.

Source: Contributed by Arturo Gomez-Pompa.

some weeds than on their cultivated relatives.⁹⁴ The genetic material of the weeds could therefore be used to enhance cultivars of commercial crops to produce more resilient varieties.⁹⁵

Productive landscapes can integrate biodiversity. While protected areas may be the cornerstones of conservation, they will never be enough to conserve biodiversity in the face of climate change (see focus B on biodiversity). The world’s reserve network roughly quadrupled between 1970 and 2007 to cover about 12 percent of Earth’s land,⁹⁶ but even that is inadequate to conserve biodiversity. To adequately represent the continent’s species in reserves, while capturing a large proportion of their geographic ranges, Africa would have to protect an additional 10 percent of its land, almost twice its cur-

rent protection.⁹⁷ Geographically fixed and often isolated by habitat destruction, reserves are ill-equipped to accommodate species range shifts due to climate change. One study of protected areas in South Africa, Mexico, and Western Europe estimates that between 6 and 20 percent of species may be lost by 2050.⁹⁸ Moreover, existing land reserves remain under threat given future economic pressures and frequently weak regulatory and enforcement systems. In 1999 the International Union for the Conservation of Nature determined that less than a quarter of protected areas in 10 developing countries were adequately managed and that more than 10 percent of protected areas were already thoroughly degraded.⁹⁹ At least 75 percent of protected forest areas surveyed in Africa lacked long-term funding, even though international

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