

Who pays the cost of *in situ* conservation?

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Not all markets are enemies of conservation. Local seed markets are a central part of *in situ* conservation. But is the same true of staple markets destined for consumption? And, is there a case for promoting specialty crop markets in *in situ* conservation?

As part of the strategy to thrust Mexican agriculture into the first world, the disappearance of CONASUPO saw an end to support prices in agriculture. And NAFTA has brought in foreign staples in record amounts, at decreasing prices. In his forecast of NAFTA, a government economist saw subsistence maize output plummeting, with peasants flocking to the US borders as a result. Few worried about it, at least this side of the border, or about its impact to *in situ* conservation. Jim Boyce raised a lonely and distant voice of concern.

Fortunately, none of it has happened. Mexican peasants have not rushed out of their towns in record numbers, and they are still growing maize, despite the drop in prices. What happened? We have said before that peasants stayed home because *milpa* is not their only activity; they have diversified. But exactly why they have continued to grow maize is an open question.

Several works have emphasized the importance of quality differences among crop varieties as a buffering mechanism in price competition. Hernandez X professed the culinary qualities of maize landraces across Mexico. So we reasoned that qualities such as these were probably being bought and sold for a price in Mexican markets, protecting local producers from imports. Proponents of *in situ* conservation have argued that landraces have both public and private value. If private value found an expression in specialty markets as we reasoned, it would not only support their claims, but might also help pay the tab for conservation in the face of development.

The argument is that if households could grow the single crop that maximizes their profits, whatever it is, and then use this income to purchase their preferred staples in the market, development could bring efficiency to the region's agriculture, without jeopardizing *in situ* conservation. Landrace diversity within the household would drop, but it would remain stable at the community level as other households picked up the tab. Households would specialize and the region would prosper by moving away from subsistence agriculture.

Whether this will happen depends on the willingness of households to spend their new income on expensive local staples instead of cheap substitutes. But American corn and Michigan beans already reach the most remote markets in Mexico, and satisfy a large share of peasants' diet. Moreover, maize is a staple of the Mexican diet, and staples are typically inferior goods.

We looked into a region within the Sierra Norte de Puebla to learn where local staple markets stand and what the prospects for change are. The community of Zoateopan, in

the mid-elevations of the Sierra, grows mostly milpa — a maize/beans/squash policulture. In the lowlands, neighboring Xochitlan also grows milpa, but predominantly coffee. While Zoateopan households grow and consume 25% of their demand for maize, Xochitlan households grow no more than 5%. The rest is market demand.

Nearly two thirds of market demand for maize is satisfied by official DICONSA co-op stores, which bring the staple from distant sources, including the US. Three stores in Xochitlan and one in Zoateopan operate year round, offering low quality maize at supposedly fixed prices. The other third of market demand are landraces, collectively called *criollo* maize, which is bought and sold by peasants on a weekly basis.

Zoateopan lacks a formal maize market, but villagers buy *criollo* maize in the market at Zacapoaxtla, the region's gateway. Although *criollo* prices in Zacapoaxtla vary, they are not significantly different from DICONSA's official price in Zoateopan. From the point of view of Zoateopan consumers, the cost of travel to the plaza at Zacapoaxtla could constitute a *de facto* price difference for landraces. Informal maize trade within Zoateopan suggests the difference is minimum, however.

Meanwhile, Xochitlan boasts a weekly market with a teeming *maize corridor*, where households can buy their choice of *criollo*. Peasants from mid and high elevations in the Sierra, including Zoateopan, supply this *criollo* at a quarter premium over DICONSA prices.

So there is a healthy market for *criollo*. But its prospects are not promising. Households seem not to substitute *criollo* for DICONSA maize as income increases. And although there is willingness to pay for *criollo* in Xochitlan, the share of *criollo* in total maize consumption is modest. Moreover, demand for *criollo* in Zoateopan is surprisingly low, given the virtual parity of prices with DICONSA. Perhaps subsistence production satisfies their appetite for *criollo*'s qualities, although altogether, *criollo* accounts for no more than half of total maize consumption.

More critical is that the wealthiest households, particularly in Xochitlan, do not demand maize at all; they buy *tortillas* ready-made, typically devoid of *criollo*. This substitution of house-made *tortillas* seems an inevitable cultural trend across Mexico. Overall it seems that the demand for *criollo* is limited, it is unlikely to increase with development; and it seems clearly insufficient to finance conservation.

But why do the people of Zoateopan hang on to their maize? And where does its value lie, if not in consumption? Commercial maize producers have been squeezed by low prices, but subsistence households in Zoateopan are still growing maize in every piece of land available. Exactly the opposite of forecasts. Moreover, we have found out that these households would not decrease production despite further decreases in prices. Is this rational economic behavior?

Can we invoke missing markets or other economic constraints to explain this incongruence? Some would argue that growing *milpa* might be the only way for

households to appropriate the product of their land and labor, or a way to hedge against food scarcity and other risks. But there is a clear alternative that defeats these explanations.

There is a very active land rental market in Zoateopan, and demand for land is so high, that households will have to rent in neighboring villages, like Xochitlan, to grow *milpa*. But the market value of maize output is roughly the same as the rental price of the land; everything else is net cost, including wage labor.

Thus, most households could hedge risks and save money by renting out their land and buying this maize in the market with the proceeds. That is, if they wanted to completely insure themselves against food scarcity, they could buy all at once and stock-pile maize. But households do not stock-pile other than their own harvest, to begin with. This observed behavior does not support risk hypotheses.

Moreover, both risk and economic constraints should play a lesser role among better-off households than among the poor, according to economic theory. But it is well-off households who grow the most *milpa* in this region, even if few among them attain subsistence. In fact, the only constraints we perceived in Zoateopan were those keeping poor and debtor households from renting in more land to grow *milpa*.

So, is subsistence a luxury? Not necessarily, but the question might place the problem in the right context. There is no money to be made in *milpa*, so why grow it? Making *tortillas* at home entails costs, as it requires much labor, and expensive firewood. These costs can be avoided by buying tortillas, but people prefer not to do so. We could interpret *milpa* as another aspect of this same behavior. That is, we can interpret these people's interest in feeding themselves as part of their desire to preserve their culture and their traditions. Here is where the value of *milpa* lies, at least for them. The idea is not new, particularly among anthropologists; what is new is that we might finally be able to rule out other possibilities in Zoateopan.

The question that comes to mind is, if households are losing money in *milpa*, where is the money coming from? The Mexican telecommunications giant, TELMEX, hires Zoateopan migrants on a temporary basis across the country. Migrants could call back home every day for ten minutes and pay back their entire earnings to TELMEX, but instead, they go back to Zoateopan every month or two, with money in their pockets to pay for a few precious things; among them, *milpa*.

So, where does this leave *in situ* conservation? It leaves it hanging by a thin thread. Mexican Indians have hold on to their traditions and culture, although the best part of it is history. We are fortunate they grew *milpa* in the past to earn a living, and we are fortunate they grow it today despite the costs. It is time we shared the cost.