African Agriculture

An important article has just appeared in the New Scientist and extracts are reproduced below. It is important for two reasons.

If you add the need for something optimistic in our terrifying world, thanks makes a third reason for reading it!

First it shows that the farming situation in AFRICA is not as we have been told and, for me almost as important, it confirms an impression I have gathered when trying to interest large organisations in our simple solar technique for rural areas. Few of these 'experts' ever seem to stray far from their air-conditioned quarters!

Desert Harvest - Fred Pearce

It must be true. We've been told it so many times. The over-farmed and overgrazed soils ot Africa, especially on the fringes of the Sahara, are losing their fertility and eroding away. As the population grows, poor farmers are mining the last goodness from their soils Their animals graze the grasslands away to nothing and the desert sands move in. Environmentalists say it; development economists say it; politicians say it; soil scientists say it.

"An area the size of Somalia has become desert over the past 50 rears The sarne fate now threatens more than one-third of the African continent," says the UN Food and Agriturlture Organization, adding that "the main cause is mismanagement ot the land."

Its sister body the UN Environmentnt Programme claims that 900 million Africans face starvation as their soils crumble away. UNEP masterminded a UN Desertification Convention in 1996 in an effort to reverse the trend.

But out in the shimmering heat of arid Africa, where tens of millions of farmers scratch a living from the soil, new research suggests that this apocalyptic vision is little more than a mirage. Farmers are finding ways to intensify their farming methods without destroying their soils. Farm yields are often up, not down. Soils are often getting better, not worse. Fast-growing populations continue to be fed. In places the desert sands are even retreating. Indeed, for most places at most times, the whole notion ot desertification increasingly looks like a myth.

Scientist BB Singh, who heads the Kanu office of tine lnternational Institute of Tropical Agriculture, drove me through the area this summer. The dusty roadsides between the closely spaced villages were busy with fruit and vegetable stalls and behind them the fields were already green with bushes laden with the first cowpeas.

Under the burning sun, we visited Ado, a farmer who tends a 2-hectare plot on the outskirts of Badumie village, 5O kilometres northwest of Kano. Ado was exultant. The previous year, he had harvested just two bags of cowpeas from his plot. This year, he got seven bags for the same etfort. He took me behind the high mud walls of his compound to an inner sanctum where the reasons for his success were bleating. He used to let his

sheep roam free. Now he had half a dozen of his animals tethered in his backyard, munching away at straw left over from his fields and creating a large pile of manure for fertiliser. The last mound of muck had been shifted just a few days before to fertilise the nextt cowpea crop.

Sheep manure is transforming Ado's life. "Now I can send my three children to school," he said. "The boys will become farmers, but I want my daughter to become a doctor." His neighbour Galadima was doing the same thing on his six hectares. "Crops grow much better with manure," he told me. "I don't use chemical fertiliser at all now that I have manure." His two wives and 18 children came running out of the house and lined up for a family photo. They all looked well fed.

Singh's researchers are monitoring the effects of sheep manure in Badume, and he confirms Ado's interpretation of his success. But there's another reason for Ado's progress, Singh adds planting leguminous crops such as cowpeas, which fix nitrogen from the air and deposit it in the soil. Frances Harris, a soil scientist at Kingston University in Surrey, agrees that these two strategies work. "The zone has supported intensive cultivation for many years without suffering from land degradation," she say s. "The key is the integration of crops and livestock, because it enhances nutrient cycling." Legumes and manure put back what the grain crops take out.

As a result, the Kano region is the most agriculturally productive part of the country and farm yields of sorghum, millet, cowpeas and groundnuts are growing rather than

dwindling. All this in a region where many experts believe only irrigation can produce worth while crop yields. Back in his small office in a back street of Kano, Singh is adamantly optimistic. "Even less than 300 millimetres of rain is enough for good crops. We can double ylelds here easily and improve the environment at the same time. And this is nothing unusual. We can do it all over Africa."

So, what are farmers doing right? This is no high-tech breakthrough, nor a result of Western aid programmes. Farming methods remain mostly traditional, with few chemical inputs. Scientist Valentina Mazuccato, asked the farmers their secret. "They do not need to invent new management systems as land becomes more limited. All they do is apply some of these soil and water conservation practices more intensively," says Mazuccato. They erect low walls of stone and earth to keep soil from washing off sloping land in the occasional heavy downpours. They spend more time weeding arid thinning crops to improve yields without depleting soils. But above all, they intensify their systems of co operation, forming gangs to tend each others' field during busy times, and lending and borrowing land, livestock and farm equipment. They swap seed varieties assiduously.
Whatever they are doing, it's working. Burkina Faso produced 36 per cent more food in 1998 than it did just eight rears earlier, and per capita food production is 20 per cent higher than in 1970. "I am optimistic," says Niemeijer. "Of course life remains hard. These

farmers are still never sure if they can feed their family, and they are not always in control of their destinies. But things are not going down the drain."

One problem has been that researchers tend to visit such areas so rarely that they have little history to back up their guesses about environmental processes. Land that appears "degraded"—that is, highly eroded—may have been that way long before the arrival of farming or grazing. "Every piece of degraded land has been seen as evidence of destructive human activity," says Niemeijer. "But when we asked farmers about areas of degraded land near their villages, they generally said it had been there a long time".

What are they doing right? According to Michael Mortimore, a British geographer with long experience in Africa who has written a book on Machakos, the Akamba responded to the environmental crisis by switching from herding cattle to settled farming. This gave them the incentive—and their rising population gave them the labour—to work the land properly, digging terraces and collecting water in ponds for irrigation and weed control.

Every farmer seems to have his or her own story of innovation. On the road out of Machakos town, for example, I dropped in on Jane Ngei, who uses an ox plough, spade and wheelbarrow to dig her own small darn to collect rainwater running down the road past her farm. *With* bucket and perforated hose, she uses the water to irrigate a couple

---

Machakos district is just a couple of hours drive from Nairobi, home of the UN Environment Programme, which still maps much of the district as on the verge of desertification.
Yet, strangely, it has never sent anyone to research the reality.
UNEP's limo Maukonen says he believes the main reason for the Machakos success story is the proximity of a large market, Nairobi, for the farmers' produce. Torn Slaymaker of Britain's Overseas Development Institute agrees. He stands by his claim in a recent study that therc arc few examples of reversal of natural resource degradation and no evidence of a wider trend of environmental recovery." He insists that "successful cases seem to be rather isolated."

Deserts did advance in Africa during the droughts of the 1970s and 1980s. The conventional view at the time was that farmers, at least as much as drought, were to blame, arid that the processes were irreversible. But even when, in the early 1990s, satellite images began to show the Sahara retreating during years of higher rainfall, the image *of* desertification caused by human activity stuck. It became what Mortimore calls an "institutional fact', too important for careers and reputations to be lightly dropped. And it is only now that detailed evidence of what has happened to soils and farm productivity in these supposedly doomed regions is finally emerging. The myth of

traditional African farmers as both environmental villains and victims is finally being exposed.

The truth is not that farmers never destroy soils, nor that deserts never advance, but that there is nothing inevitable about the process—it may be the exception rather than the rule. And even when soils have been in decline, as in Machakos, farmers have shown themselves quite capable of turning the tide. Moreover, it seems that even the rapid growth of population in many African countries can he a spur to change, rather than a curse. As Singh puts it: 'There is no reason why Africa cannot feed itself."