world is all about right now—and public heath is getting unbelievably short shrift compared to the urgency of the issues.' "

In hundreds of papers, Op-Eds, speeches, and behind-the-scenes meetings, Sachs has been working to bridge that gap, exhorting, cajoling, and shaming leaders of rich countries and donor agencies to support public health efforts in poor countries. And he is not shy about asking for billions. That's what is needed, he says, to deliver the drugs that can help stem the global AIDS epidemic. "Like many, Sachs came late to the AIDS issue, but when he took it on, he really took it on with a vengeance," says Binswanger.

Sachs sees the AIDS 2000 meeting in Durban in July last year as a turning point. Speaker after speaker reported that life-extending drugs are transforming the specter of AIDS in rich countries. At the same time, it was painfully clear that those drugs "reach almost nobody in poor countries—and that our world must not go on like that," Sachs says. "The notion that parents should be sent to their graves for lack of $500 a year in drugs strikes me as a mind-boggling miscalculation from an economic development point of view as well as being immoral."

One year later, "we're still without officially supported treatment programs," says Sachs. But although he is impatient, he sees progress. "It is now widely if not universally accepted that treatments should be part of official policy."

On the ground

Not only have governments recognized the need for treatment, says Sachs, but drug companies have responded to pressure from both the public and generic-drug manufacturers. The big AIDS drug companies have agreed to reduce their prices in developing countries or allow generic versions to be used, so that it is now feasible to think about treating an entire continent. "That is a real breakthrough," he says.

Treating millions of HIV-infected individuals in poor communities is easier said than done, but Sachs believes that with support from science, it is possible. In a "consensus statement" released in April, 128 professors from Harvard's medical school, school of public health, and other departments called for a series of intensive clinical trials to determine the most effective use of antiretroviral therapy in the developing world. That statement, spearheaded by Sachs, pointed to the success of small-scale use of "directly observed therapy" or DOTs—when a public health worker watches a patient take the necessary drugs—first used for treating tuberculosis. Scientific input and review of projects, similar to study sections at the National Institutes of Health, is critically important—and is something many past efforts have lacked, says Sachs. "There has been a tremendous amount of amateurism and seat-of-the-pants operations by donor agencies. Somehow proper science just doesn't get into the story."

Although Sachs is not lacking in confidence, many in the AIDS and development communities are skeptical. Some worry that an overemphasis on treatment will drain already scarce funds from prevention programs—the only way to slow the epidemic. "Jeff Sachs's view is that money is not scarce. But that has yet to be demonstrated in the real world," says senior economist Mead Over of the World Bank in Washington, D.C. And if they had to choose between prevention and treatment, many say prevention would save the most lives.

But Sachs argues that prevention will ultimately fail without treatment programs. "I'm utterly convinced that people will not get tested, will not consider themselves infected, if this is not put in a medical context," he says.

Bloom agrees. "I see the drugs as a catalyst that has caused a major change in people's thinking in what is possible and what is not possible," he says. Sachs's call for treatment "has opened a flood of possibilities that would not have come from prevention alone. People are not going to put $5 billion a year into condoms."

As pledges to the global fund accumulate, Sachs is increasingly optimistic and steadfast against naysayers. "Will rich countries actually be persuaded? Not if 'experts' say that it is impossible. The key, I believe, is to show the need, the feasibility, the enormous social benefits—and the enormous worldwide costs of doing nothing. I would advise the critics to learn a little about how large our economy really is, and how easily we could mobilize $10 billion per year from rich countries, if we decide to do so." **–GRETCHEN VOGEL**

ECOLOGY

Dammed If You Do, Damned If You Don't?

Battle lines are being drawn over the United Kingdom's first large-mammal reintroduction, the return of the European beaver

CAMBRIDGE, U.K.—Like many other regions throughout Europe, the spindly pine and birch forests of the loch-studded Scottish Highlands are haunted by the ghosts of charismatic species that gambol there no more. Wolves and brown bears, reindeer and lynx, wild boars and beavers all once thrived on the British Isles before humans extirpated them over the past few millennia. "There has been a sad decline in the [large] British mammalian fauna," says Martyn Gorman, a mammalogist at Aberdeen University. "We have a moral obligation to reintroduce these species wherever possible," he argues.

Not everyone agrees, however, and a major test of wills is shaping up over plans for the U.K.'s first large-mammal reintroduction: the European beaver (*Castor fiber*). Backers view bringing back the riparian engineer as a chance for Britain to get with the continental European mainstream and to put right a historical wrong. Critics, however, contend that in the 4 centuries since the beaver disappeared from the British Isles, its former habitat has become so degraded that it would be foolhardy to resurrect the species now. Forces aligned against the reintroduction have won an extra year to press their case: Scottish National Heritage (SNH), which is leading the bring-back-the-beaver movement, announced last month that it has postponed essential survey work on beaver habitat until next spring because of the foot-and-mouth disease crisis.

It's unclear exactly when the

Moral imperative? Some argue that humans ought to bring the beaver back to atone for its extirpation.

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last beaver chewed up a British hardwood. Fossils of the beast, as well as remains of characteristically gnawed birch stumps from peat bogs in eastern England, are scattered across the island, and medieval writings mention the critter in hunting legislation and fur export tariffs. The beaver disappeared from such documentation in the British Isles around the 16th century; it lives on only in such village names as Bevere (Beaver Place) in Worcestershire and Beverly (Beaver Clearing) in Yorkshire.

The commodification of the beaver was not unique to Great Britain. Across the continent, Europe's largest rodent was trapped for its pelt, for food, and for its castoreum, musk used in medicines and perfumes. Deforestation also played a role in snuffing out the creature, which by the turn of the 20th century had disappeared from Europe with the exception of about 1200 individuals in ghettos in the lower Rhone in France, along the Elbe in Germany, in the Dnepr River Basin in Belarus, in the Voronezh region in Russia, and in southern Norway.

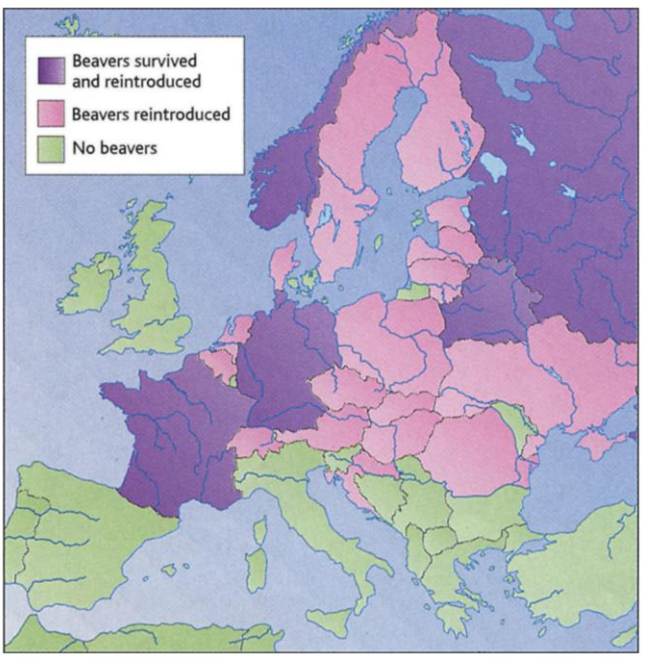
Over the last several decades, 22 countries have reintroduced the beaver (see map), generally encountering little opposition. Today an estimated 400,000 beavers thrive in river basins from Saint-Tropez to Helsinki. Several European countries have also reintroduced lynx, wolves, and boar.

The United Kingdom has been slow to embrace such reintroductions. "We have been very timid," says Derek Yalden, a mammalogist at the University of Manchester. A beaver reintroduction was first raised as a possibility a half-century ago, Yalden says, but the idea didn't gain momentum until 1992. That's when the European Union set forth its Habitats Directive, requiring member states to consider reintroducing lost species that were once native and are now threatened elsewhere.

One immediate task was to determine which living beavers most closely resemble the British ones of yore. After a statistical analysis of fossilized skulls and jawbones of British beavers and modern European beavers, Paul Kitchener, curator of mammals at the Scottish National Museums, found last year that the extinct British beavers most closely resembled contemporary Scandinavian populations. "The two groups share a common ancestor more recently than with other European beavers," he says.

With more riparian wildlands than its southern neighbor, Scotland was the obvious place to look for surviving beaver habitat, says SNH science chief Colin Galbraith, who points out that Scotland decided to pursue the reintroduction independently of England and Wales. Since taking up the beaver's cause 6 years ago, SNH has amassed a data trove indicating that sustainable beaver populations will indeed have enough habitat to survive, and that the animal will not degrade ecosystems.

One pervasive fear is that beavers will dent Scotland's logging industry, which primarily exploits the nation's coniferous forests. But SNH-sponsored studies suggest that this is a red herring. "When we looked into this, the consensus was that conifers actually form a very small part of the beaver's diet, which is principally made up of herbs and deciduous trees," says Peter Reynolds, a consultant for the Capreolus Wildlife Consultancy in East Lothian. Indeed, Reynolds, who reviewed the likely ecological impacts of beavers on behalf of SNH, found that British woodlands could benefit from the habitat engineers. By continually trimming trees, beavers improve conditions for understory plants, creating a more ecologically diverse habitat. And with memories still fresh of the pervasive flooding across Britain last year, Reynolds is eager to point out that European beavers are much less likely to construct dams than their North American cousins. They mostly burrow along the water's edge, he says.



On the comeback trail. From remnant populations in five countries, the European beaver has since found new homes across the continent.

SNH also points out that it has public opinion on its side: In 1998, Scott Porter Research and Marketing of Edinburgh found that 86% of more than 2000 Scots polled were in favor of the reintroduction.

Although a seeming minority, opponents contend that the beaver could push stressed habitats past the breaking point. Deer populations have skyrocketed in recent years, taxing Scottish woodlands. "Many [riverbanks] are overgrazed and can't take any more degradation," asserts Jane Wright, president of the Scottish Anglers National Association. Beaver-induced erosion of riverbanks could make rivers shallower and perhaps unsuitable for salmon, the mainstay of Scottish anglers.

The iconic status of Scottish salmon is not lost on SNH, which defends the reintroduction by pointing to Scandinavia. "The top salmon rivers in Norway have beavers on them, and this doesn't harm the salmon interests," says SNH spokesperson George Anderson. "European beaver and salmon evolved together on Scotland's rivers, and there should be no problem," he insists.

SNH plans to put its arguments to the test in a pilot study. The organization has set its sights on the Knapdale forest in Argyll, in western Scotland. Owned by the U.K. Forestry Commission, Knapdale's mixed deciduous-coniferous forest and lakes are "perfect beaver country," says Anderson. The site's geography—it sits on a peninsula—would help prevent the beavers from invading neighboring countryside, but as a safety net the animals would be radio-tagged and captured if they stray too far.

Plans to jet in three families of Norwegian beavers, about 18 individuals, for a period of quarantine were set to go ahead this summer, for release in Knapdale in spring 2002. But the foot-and-mouth epidemic has put the kibosh on all fieldwork across Scotland this year, delaying habitat surveys.

The SNH board will meet later this summer to review the project one last time before applying to the Scottish Executive for a license to reintroduce the beaver as a non-native species. Five years after scrutinizing the beaver population's vitality and its environmental impact, the SNH would deliver a report to the Executive outlining recommendations on a broader reintroduction. If the beavers were to lay waste to Knapdale, Galbraith says, the SNH would admit defeat and scrap its reintroduction plans. Even if the beaver lives in harmony with other Scottish denizens, however, that might not usher in an era of reintroduction enlightenment. "Public acceptability is the most important thing," says Galbraith. "I doubt there would be the same enthusiasm for [species] such as the wolf or lynx."

–JOHN PICKRELL