plan is to create a deeper contextual setting for animal specimens, displaying "natural history as history," illustrating that "nothing exists for long, even an elephant."

Staffers who have attended internal meetings on the plans expressed concern that some diorama displays—such as one depicting pronghorn sheep on the Burgess Shale in Canada, where former Smithsonian head Charles Walcott uncovered a trove of fossils in 1909—may be gutted to make room for renovations. (Walcott's widow paid for the original artwork.) Two curators of the North American mammals—Richard Thorington and Alfred Gardner—said that, as part of the renovation, the museum plans to close these exhibits at the end of May, after which the public may not have another chance to view them. "There is a real concern that there's no clear plan" to get public advice or transfer the exhibits to other institutions before doing away with them, says Thorington. Gardner adds that they are unique examples of naturalist art and that they contain authentic materials from the places they represent.

Meanwhile, an intramural committee last week expressed its opposition to suggestions that the big elephant in the rotunda be moved aside, possibly to make room for a new information center. Plans for refurbishing the rotunda have been the subject of intense speculation, including a rumor that Behring, who became a passionate big-game hunter 5 years ago, has donated an elephant of his own that may be mounted in the rotunda opposite the longtime resident. Fri says only that Behring has given "several hundred" animal specimens to the museum, and "we are still working on" where they will go. Behring himself says it's entirely up to Smithsonian officials how the specimens will be used. "They're really in charge on what animals to put in," he says.

In spite of that reassurance, several senior researchers at the museum grouse that the Smithsonian may be making too many concessions to woo donors. They are especially upset that the rotunda itself may be named after the Behring family. Recently, the museum opened two donor-named exhibits—the Janet Annenberg Hooker Hall of Geology, Gems, and Minerals and the O. Orkin Insect Zoo, honoring the successful pest exterminator and his business—but the critics believe that this case is different. "I don't object to naming the halls after people who make donations," says one researcher, "because I know that in 20 or 30 years those exhibits will change and the names will go." But he doesn't like the idea of enshrining a benefactor's name in a federal building, forever.

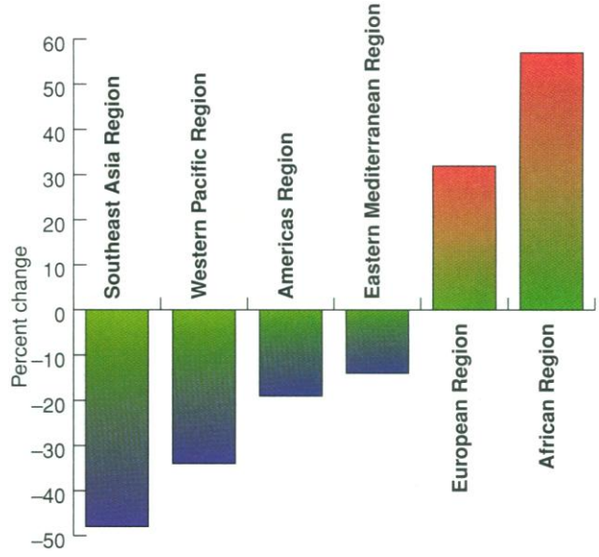
Fri, who notes that the Smithsonian's board of regents has approved the renaming, says it is fitting that the donor of the museum's largest gift should be honored in this way. It's no precedent: The museum itself is named for its original benefactor, John Smithson.

–Eliot Marshall

PUBLIC HEALTH

WHO's Slow Road to Funding Reform

GENEVA—As the member countries of the World Health Organization (WHO) gathered here last week to celebrate the body's 50th birthday and ratify the appointment of its new director-general, former Norwegian Prime Minister Gro Harlem Brundtland (*Science*, 9 January, p. 166), the festive mood masked some frantic maneuvering. Behind the scenes, delegates were scrambling to avert a damaging split in the organization over funding reform. A proposal to redistribute the organization's budget for field operations—$560 million every 2 years—had threatened huge budget cuts for some of WHO's regional operations, such as 50% from its Southeast Asian office. But after a week of tough negotiating, delegates reached a compromise in which the poorest countries would be protected and cuts elsewhere would be phased in more slowly. "I feel very good," says Khalkur Rahman, counselor in the Bangladesh Mission in Geneva, whose country escaped a 66% cut in its funding from WHO.



Money movements. The WHO's new funding formula will dramatically shift the focus of the agency's funding.

Few people question the need to reform how money is allocated among WHO's six regional offices, which has more to do with a region's historical need and its clout in WHO committees than with its situation today. But many delegates attending the World Health Assembly were shocked at the size of the cuts that the new funding model prescribed for so-called Least Developed Countries (LDCs), such as Bangladesh, Nepal (a 62% cut), and the Maldives (77%). The cuts would have affected the whole range of WHO programs in these countries—everything from health and nutrition programs to efforts to control diseases such as malaria, leprosy, tuberculosis, and AIDS. The compromise, say WHO officials, should ease the pain of trimming programs while recognizing the new realities of world health, such as the collapse of health and social conditions in the former Soviet Union.

When the regional budget was formulated 50 years ago, the Southeast Asian region, which includes the Indian subcontinent, was the neediest region in the world, with the largest population and the largest disease burden. But times have changed, and countries in other areas, principally Africa and Eastern and central Europe, have emerged as contenders for the "neediest" title. "There has been no health- or needs-based analysis of how much money we give to the regions," says Dennis Aitken, a WHO assistant director-general.

About 6 years ago, WHO began looking for a fairer system. It hired three experts from Ghana, Singapore, and the United States to assess a new model for calculating the allocations. The model, known as the Human Development Index (HDI), uses a combination of life expectancy, educational attainment, and gross domestic product per capita as the criteria for development. WHO also added safeguards to ensure that larger countries do not benefit unduly at the expense of mini-states and a weighting for countries with poor immunization coverage.

"The beauty of it is that it will continuously adjust what individual countries get depending on how those countries do," says Jo Asvall, regional director for Europe. "If they do better, they get less. If they do worse, they get more." Says Aitken: "The flexibility is critical because people won't believe in the system if it doesn't always reflect change."

But when the size of the cutbacks for some obviously poor countries became apparent, many delegates criticized the new model for relying on life expectancy and education. "We don't like HDI because it is not sensitive. It's not health related," says Suwit Wibulpolprasert, chief medical officer in Thailand's Ministry of Health. He believes a country's disease burden and maternal and infant mortality rates should play a more important role in the calculations. "I personally initiated a move to exempt LDCs from these cuts," says Rahman.

As originally proposed, the new budget formula would have shifted $105 million of WHO's biannual budget to underfunded countries in Africa and the European region over 6 years, while spending in Southeast Asia, the western Pacific, the eastern Mediterranean, and the Americas would decline. But according to the plan hammered out by delegates last week, LDCs will be exempt from any cuts, and the regions in line for reductions will be cut by no more than 3% per year over the 6-year period. Hence the Southeast Asian region will be cut by only 18% over 6 years, rather than 50%. With the exemptions and caps, $60 million of resources will be transferred to the African and European regions over 6 years. At that point WHO's executive board will review the changes, and the WHO will decide whether to transfer the remaining $45 million.

Some delegates were disappointed at the slow pace of the funding changes, but they backed the deal because it would avoid considerable bitterness in some regions and splits in the organization. But the chair of the Budget Committee, Nimal Seripala de Silva, calls the budget reform "a landmark decision. ... This is a wonderful present to our new director-general, Gro Harlem Brundtland." De Silva adds: "The present we have given to her will cater to the health needs of the whole world community in the 21st century."

–Lisa Schlein

Lisa Schlein is a journalist in Geneva.

BIOTECHNOLOGY

EU Ends 10-Year Battle Over Biopatents

Amid intense lobbying and appeals from opponents for more time, the European Parliament passed legislation last week that would make human gene sequences and transgenic plants patentable throughout the European Union (EU). These controversial provisions were included in the so-called "gene-patenting" directive, first introduced a full 10 years ago. Each member state must now redraft its national laws to comply with the directive to ensure that there are no internal barriers in the EU's common market.

The directive is a critical element in the EU's efforts to promote biotechnology, and the biotech industry is delighted. "It's an historic decision," says Anthony Arke, secretary-general of the Brussels-based trade association EuropaBio. Not surprisingly, opponents such as Dan Leskien, a lawyer for Friends of the Earth, Europe, are dismayed. The directive, he says, "is a disaster." Leskien and others object, among other things, to patenting human genetic material and other biological resources, which they believe are common assets of humankind.

The new legislation allows the patenting of partial and complete human gene sequences, but only if an industrial application is disclosed—in line with policies already adopted by most of Europe's national patent offices. Also, transgenic plants are patentable if the trait conferred, say, disease resistance, is applicable to more than one variety. What the directive does not allow is the patenting of any processes for human cloning, processes that modify the germline genetic identity of humans, and the use of embryos for industrial or commercial purposes. The directive should bring European laws more in line with those of the United States and resolve some disputes that have been simmering for years.

The European Patent Office (EPO), which is governed by the European Patent Convention, has been awaiting this directive with interest. Signatories to the convention include all 15 member states of the EU plus Switzerland, Lichtenstein, Monaco, and Cyprus. Inventors can make a single application to the EPO, which will cover as many member countries as they wish. Even though the EPO is not legally bound to follow the new directive, experts say that because it applies to 15 of the EPO's 19 members, it is certain to influence EPO thinking. That new thinking will soon be applied to two key biotech patent cases currently awaiting the outcome of appeals. Although not officially acknowledged, it is widely believed that these decisions have been on hold until the directive was passed.

"[The directive] makes clear the patentability of plants and animals in general."

—Conrad Becker

The first concerns Harvard University's Oncomouse, which is genetically engineered to be susceptible to cancer. The EPO granted Harvard a patent on the animal in 1992, 5 years after it received a U.S. patent, but the pressure group Compassion in World Farming (CWF) immediately challenged the European patent on the grounds that the European Patent Convention says a patent cannot be granted if it is contrary to morality. "Genetically engineering animals to develop a painful, lethal disease is morally unjustifiable," argued CWF.

In the event, the directive states that such a patent would be allowed only if there was substantial medical benefit to justify the animals' suffering. Hence the EPO appeal board will have to make its own moral decision. If the patent is revoked, Harvard could apply for patents in each European state, but they will follow the same guidelines as in the directive.

The second patent appeal is a test case brought by the Swiss drug and biotech company Novartis in an effort to clarify the scope of patents for transgenic plants. The EPO will not grant patents for new plant varieties on the grounds that they are covered by separate EU legislation. However, this legislation covers only one variety at a time, which is fine for traditional plant breeders but causes the biotech industry a problem because a gene can be inserted into a range of plants to confer a specific trait. Conrad Becker, head of patents and trademarks at Novartis, says, "After years of research, you can claim only one variety. In the meantime, another company can copy your work and gain protection for other varieties."

In an earlier case, a patent for a herbicide-resistant transgenic plant was first awarded by the EPO, then revoked on appeal in 1996 after Greenpeace pointed out that the patent in effect covered a new plant variety. Novartis and other companies then set about trying to overturn the precedent set by EPO's appeal board. Novartis applied for a patent on a transgenic plant and was duly turned down. They appealed, were turned down again, and are now awaiting the decision of the EPO's final board of appeal.

In this case, the new directive is expected to have a significant impact. Although it still excludes patents on new plant varieties, it says a transgenic plant is patentable if the genetic modification is applicable to more than one variety. Becker says the new directive "is a very good step forward," adding, "it makes clear the patentability of plants and animals in general."

Some researchers, meanwhile, remain cautious about the impact of the directive on research. Most existing national legislation exempts research from royalty fees, and Becker says he expects this to be continued as the directive is applied in each country. But, says biologist Roger Whittenbury of the University of Warwick in the U.K., "we'll have to wait and see."

–Helen Gavaghan

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