

had been documented and shipped several times before? Imagine the labor cost! Curiously, as a cost savings the verification agents are instructed to avoid incurring long-distance telephone charges, so phone interviews with applicant references in foreign countries apparently are delegated to the local US consular staff.

Evidently, "compliance" has a very far reach and helps to significantly reduce the work efficiency even of national laboratories that are supposedly laboring in the national interest.

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## Simple, low-tech option for carbon sequestration

The August 2012 issue of PHYSICS TODAY (page 22) contains an item by David Kramer that discusses problems associated with present carbon capture and storage technologies that use geologic sequestration. Several high-tech methods for carbon seques-

tration are being developed, but one low-tech method is as simple as disposing of discarded wood by burying it rather than burning it. Wood is approximately 50% carbon, and when it decomposes or burns, the temporarily sequestered carbon is returned to the atmosphere. Planting trees can help, but new forests act as carbon sinks only until the rate of decay of the wood catches up to the rate of growth. As a complement to the present scientific and engineering efforts, encouraging communities to "bury, don't burn" discarded wood could be a relatively cheap and easy way to sequester carbon.

Nothing is more low tech than digging a hole, and in landfills that are simply covered with soil, 0–3% of the carbon from wood is released as carbon dioxide and methane after several decades, with the remaining carbon mostly stored as a long-term nonreactive solid mass. In landfills designed to remain dry, methane release is negligible, and the wood doesn't decompose.<sup>1,2</sup> Globally, the emission rate from fossil-fuel consumption is about 8 gigatons of carbon per year (GtC/yr), with an accumulated load of about 165 GtC in the atmosphere. An uptake

of 60 GtC/yr, including an estimated 10 GtC/yr from large pieces of dead wood, is temporarily sequestered by land vegetation. Municipally collected waste (old furniture, construction waste, cleared brush, and so forth) is estimated at 1 GtC/yr, although the percentage presently burned is unknown.<sup>3</sup>

## References

1. J. A. Micales, K. E. Skog, *Int. Biodeter. Biodegr.* **39**, 145 (1997).
2. J. Bogner, K. Spokas, in *Soils and Global Change*, R. Lal et al., eds., Lewis/CRC Press, Boca Raton, FL (1995), p. 67.
3. N. Zeng, *Carbon Balance Manage.* **3**, 1 (2008).

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## Correction

**November 2012, page 22**—The third sentence below the subheading "Which strategy?" should read, "For example, the American Institute of Physics (AIP) and the American Physical Society (APS) both have journal copyright policies that allow authors to post the publisher's PDF on their personal websites or in their institution's repository." ■

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