and streamline the grant-making process (J. Mervis, "NSF moves into FastLane to manage flow of grants," News & Comment, 13 Jan., p. 166). Two inaccuracies in the article concerning FastLane goals merit correction. When fully implemented, FastLane will streamline *all* processes associated with grant applications. However, merit review outcomes still will be communicated to proposers personally by program officers. Indeed, an overriding goal of FastLane is to enable faculty and NSF staff to focus more time and attention on such communications, and less on routine procedural matters.

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Shelter After Earthquakes

Our greatest resource to rescue tens of thousands of homeless families in urban disaster areas resides in suburban driveways and backyards of America, not in military warehouses. This resource is the uniquely American pickup camper. Hundreds of thousands of people are now homeless in Kobe, Japan, in the middle of winter. It will be months before temporary structures can be erected. Even temporary quarters will likely cost more than $50,000 per family in Japan. However, the Japanese government could provide most of these families with American-made pickup camper units within a few weeks. The cost would be no more than $10,000 per family. This would not be a one-time expense. It would be a long-term investment for Japan. The camper units would be available for future emergencies.

The common pickup camper would provide secure, relatively earthquake-proof sleeping quarters, drinking water storage, and basic cooking facilities for a family—all in a strong, lightweight structure that could be quickly air-lifted anywhere, if necessary, by small helicopters. It sits on the ground anywhere you want to put it. It won't collapse in an aftershock, even if it tips over. In most disasters, the pickup truck owners or commercial transport trucks can deliver thousands of them within a day after roads are opened to a disaster site. A small forklift machine (or eight soldiers) could unload a camper unit and place it anywhere desired. A typical 100-kilowatt portable generator could provide electricity for lights and small appliances to a cluster of 100 camper units. Within a few days, these camper units could be connected to temporary water and sewage lines.

A quick survey of pickup camper dealers in major cities on the U.S. West Coast alone indicates that there are at least 4000 new units available for immediate delivery to shipping ports on the West Coast. The dealers suggest that there are at least another 80,000 nearly new units for sale by owners. Many owners gladly sell these in the middle of winter. These 84,000 camper units would provide immediate, secure, warm living quarters for most of the homeless families in Kobe—within a month.

A few knowledgeable buyers could have thousands of these units sent to West Coast ports within 3 days. Every Kobe-bound container ship now idled because of the earthquake could carry 600 to 1000 camper units (several camper units fit inside a normal 8-foot-high shipping container). Or, if our government wanted to be magnanimous, we could rent the Japanese a spare aircraft carrier. One aircraft carrier to Kobe could carry 5000 camper units—with space left over for the helicopters to off-load the camper units and set them in place in downtown Kobe. If we

quickly threw aboard some plastic pipe and electrical cable, our sailors (and one good plumber) could have these units all hooked up for water, electric, and sewage services on the trip over.

Add up what it will cost Japan to build temporary housing for 100,000 families in Kobe. That would cost five times as much and take five times as long—while the earthquake survivors freeze through the winter. And none of this temporary housing could later be moved to Tokyo if an earthquake hits there.

Here in the United States, our disaster officials should realize they have overlooked the obvious. They should organize and sign up the owners and suppliers of camper units and recreational vehicles to respond to national disasters. This is how the U.S. Forest Service obtains the equipment it needs to respond quickly to major forest fires. Local fire departments should be given the federal money to organize these emergency shelters.

We must be ready to avoid the tragedy of Kobe if real disaster strikes one of our major cities.

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Risk Assessments of Low-Level Exposures

We read with interest Philip H. Abelson's editorial of 9 September (p. 1507) about risk assessment of low-level exposures. None of the subsequent responses (Letters, 18 Nov., p. 1141), however, offer suggestions for addressing the issue he raised. The approaches currently available to address this issue are (i) experimental studies of administered doses of toxicants or radiation exposure to animals; (ii) studies of unintentional or occupational exposure to humans; (iii) human environmental studies of effects at naturally occurring doses in certain locales; and (iv) meta-analysis of low-dose human exposure studies.

Even though these approaches can address low-dose effects, each has limitations. For example, in option i, applying results obtained from animal studies to humans is questionable because of interspecies variation in metabolism, which will likely yield different responses to doses among species. As Abelson points out, the linear model for extrapolating high-dose effects to very low doses is doubtful. This is especially the case if the high-dose exposure was received suddenly, or if the range between the lowest received dose and the dose used in prediction of effects is large (greater than one order of magnitude). Linear extrapolation also disregards repair mechanisms in organisms (*1*, *2*). These caveats apply regardless of whether the study is of animals or humans.

With regard to option ii, studies of acute (high) doses depend on the occurrence of rare and unintentional events such as explosions. Occupational studies are limited by sample size and increasingly stringent regulation of human exposures. For example, the Hanford worker study (*3*) yielded dose-response parameter estimates with wide confidence intervals.

Natural-dose, locale-based studies (option iii) depend on the availability of reliable measurements of effects, doses, and confounding factors. Epidemiologic (geographic cohort) studies of naturally occurring (background) radiation have been conducted (*4*); however, these studies typically occur on an ad hoc basis as funds are available and as appropriate locales are identified.

A meta-analysis of multiple low-dose human exposure studies (iv) can produce results with more statistical power than any of its constituent studies; however, if there are too few studies or the study results are heterogeneous, meta-analysis may not lead to a definitive conclusion. Also, methodological questions have been raised about