

# What is TIDES?



TIDES is a research project designed to encourage the development of communities of interest in Stabilization and Reconstruction, Humanitarian Assistance, Disaster Relief, and Building the Capacity of Partner Nations.

Situations include: domestic and foreign, short term (disaster relief) and long term (displaced persons), military involvement, or not.

Each has different needs.

DoD usually is not in the lead for these efforts, but often is called upon to support others, like DHS/FEMA domestically, and the State Department overseas.

TIDES is not trying to solve all problems in these situations, but is focusing primarily on six infrastructures: Shelter, water, power, cooking, cooling/lighting/heating, and Information & Communications Technologies (ICT).

The goal is to build as broad a partnership as possible to deal with the target situations most effectively.



Participation in TIDES does NOT imply endorsement by the US govt.

One goal is to help people live above mere subsistence levels in whatever circumstances they find themselves.

Cultural issues are important--shelters that might raise the standard of living in some foreign refugee camps could be unacceptable for long-term inhabitation by US disaster survivors

The focus is on low-cost, Transportable Infrastructures, not the capital-intensive infrastructures of the developed world, nor the deployable, integrated (and expensive) ones used by the military.

## **Initial Point of Contact**

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# Shelters



The Uni-Fold shelters (#4) took under 10 minutes to deploy. They have integral plastic floors (waterproof in later models). They cost ~\$2000-2500, in units of 100. They have been used for things like showers and decontamination stations.



The ShelterBox (#2) from a Rotary Club in Cornwall, England supports up to 10 people with sleeping, cooking, water purification tablets (6 mo), educational materials, etc. Over 50K have been shipped since 2001, supporting over half a million people. A box costs \$1000, shipped. They are sent only through Rotary channels.



The YurtDome (#3) packs into a large duffle bag and takes a small team an hour to deploy. It costs around \$500 and a range of sizes, up to around 30' across are available.



The hexayurt (#s 1 and 5 on the map) can be assembled in the field with only tape and boxcutters (besides the panels) due to its geometry. The 8-foot high version cost about \$200, and took about 2.5 hours to assemble by first-time amateurs. It is lightweight, and well insulated. The 12' hexayurt cost about \$350, and also was assembled in a little over 2 hours. It is being used mainly for ICT. Materials in the US building industry supply chain could provide up to 100,000 shelters per day in a catastrophe. Low cost cardboard versions for the developing would cost around \$100 each.

# Infrastructure



Solar Cookers provide smoke- and fuel-free cooking in a variety of climates. Simple cookers can be made by hand in villages and parabolic designs can reach 400°F. Insulated boxes keep food cooking when it is taken out. Drinking water can be purified in solar cookers at only 170°F, and the WAPI indicator shows when the water reaches this temperature.



Efficient stoves coupled with solar cookers provide "integrated cooking." Wood gasification stoves burn with almost no emissions and use wood 2x - 3x better than other stove designs. Rocket stoves can be built anywhere out of almost any materials, including scrap tin cans and mud firebricks. Smoke inhalation from cooking fires is a major public health issue all over the world.



AA battery "microsolar" can provide basic services like lighting, charging cell phones, cooling equipment (if it is efficiently designed, see the SleepBreeze system on display,) and power wood gasification stoves. Batteries are charged at a central station and taken home for use. High efficiency CCFL lights can provide bright, even illumination which makes use of the eye's dark adaptation response.



The GATR inflatable satellite dish is very portable and fits in a duffle bag. It also was up and running shortly after the power came on.

The MTN satellite dish was up and running in less than two hours after the generators were turned on.

PACSTAR bridging equipment links various communications equipment together, such as radios to telephones. This supports a telephone in every shelter.

The Humvee optimized for self-contained disaster relief situations is shown at station #14 (on some days).

