April 2, 2012	The SMOS Initiative was an off-time activity (2011-2012) of some Finnish science and technology professionals interested in creating innovative solutions for disaster communications. Team: Timo Tokkonen, Jakke Mäkelä, Kalle Pietilä, and Niko Porjo.

THE "SMOS" SOLUTION: ONE-PAGER

After any natural or man-made catastrophe, the first few hours and days are crucial. Before real recovery efforts can begin, it is necessary to set up a communications system to coordinate the efforts. Disaster communication systems exist for emergency officials and aid workers.

For normal citizens, mobile phone networks are becoming an increasingly useful way of communicating, as well as being a potential information source for rescue efforts. Just knowing the number of active mobile phones can allow the authorities to focus rescue efforts. Even developing countries have high mobile phone penetration, and thus the number of phones is a reasonable proxy for the number of victims. Although the batteries of mobile phones will be depleted, for the first few days the majority will still be active.

However, even mobile phone networks can be destroyed or overloaded when the catastrophe is severe enough. The SMOS Initiative is proposing a solution to enable partial mobile phone connectivity even when the normal infrastructure is not working. More specifically, it is simpler to restore text messaging (SMS) services than full voice service. An SMS service would allow victims to communicate with their families. At least as importantly, it would allow emergency organizations to receive and send information straight to the victims.

If it is accepted that the temporary network only transmits SMS traffic, then the required hardware could be simplified and miniaturized compared to normal cellular telephone base stations. The target of the SMOS Initiative is to define a "base station" small and rugged enough to be aerially deployed, so that one volunteer with a private pilot's license and a small airplane could quickly restore telecommunications over a huge area. Even if aerial dropping is not possible, the small size means that they are easily portable by other means.

Once the base stations are dropped, they automatically form a network for mobile phones to transmit and receive SMS traffic. The base stations are powered by batteries that give the station a lifetime of about a week (after which normal wireless infrastructure is assumed to be in place).

The proposal still has multiple open technical issues, and the economic, logistical, and political challenges are also formidable. The idea is therefore presented as a discussion paper, aiming to open debate on whether such a system could in fact be practical and useful.

Note (April 2012): The project has been discontinued in its present form, as no commercially feasible way of implementing it has been found.