What type of cells or batteries to have in an emergency?

For cost and for reusability reasons, rechargeable cells are the way to go, lithium type cells are not workable because they are hard to ship, hard to safely charge in a primitive environment, and are expensive. NiCd would work except for the high leakage or self discharge rate and the shift of the industry to the higher production of the better NiMh cells. So the bottom line is use NiMh with the "low self discharge" newer types being the preferred ones to use. These only drop to 85% of original charge after one year of storage. Where older type NiMh or NiCd rechargeables are empty after a few months. For larger battery storage in the 12 volt and above, use Lead-acid or the longer lasting gel cells.

I currently recommend standardizing on AAA, AA, 9V, and 12V. With 48V as a possibility for those that need the extra power. I would skip the 24v usage. So the bottom line is: NiMh "low self discharge" for AAA, AA, and 9V. Lead-acid or gel cells for the 12v, 48v.

What I have found to work well that is cost effective is the emb brand "low self discharge (LSD)" AA (2200 mah) and AAA (800 mah). They are rechargeable up to 1000 times where a normal older type cell is rechargeable only 300-500 times. The "low self discharge" type have a slightly lower mah to be able to accomplish this longer life (2200 instead of 2500). For 9v I use the Tenergy (200mah). For 12v I use two series connected 6v golf cart batteries.

Eneloop by Sony is the industry standard with respect to "low self discharge" at 1900 mah and will recharge 2000 times. However I have found that they sell for too high a price and are not as cost effective as the emb brand.

I have also found lots of false advertizing on eBay. Saying that they are 3000 and even 3500 mah I have purchased some of these recently and tested them and not only are they lighter in weight but they are very low in capacity see the table below. Comparing cells in weight is a good way to weed out the bad from the good. The heaver, the higher the mah capacity.

The following table shows what I found for some of the common NiMh cells. The emb and Eneloop are the only ones that were "low self discharge". The rest are non-low-self-discharge. The Ultra-fire and the Bty-hw are common on eBay. Powerex is the largest I could find of the non-low-self-discharge type that produced close to what the label said in terms of mah. Note the gm weight of each is an indicator of the storage capacity. Buyer beware.

Brand	emb	emb	Eneloop	Ultra-fire	Bty-hw	Powerex
Size	AA	AAA	AA	AA	AA	AA
mah label	2200	800	1900	3500	3000	2700
Measured mah Avg	2224	819	1944	432	325	2571
gm wt	27.7	12.1	25.9	15.2	14.4	30.1