

# THE POWER OF POWERLESS

**Nicholas Negroponte**

Founder and Chairman, One Laptop per Child

Chairman Emeritus and Founder, Media Laboratory, Massachusetts Institute of Technology, USA

**Abstract:** Power regimes are dictated by constraints such as battery life, heat emission and environmental issues. I would like to add a new one, rarely considered, but increasingly important: “Human Power”. Does the device consume sufficiently little power for it to be rechargeable with the human body? By that I mean the upper body. Can you crank it, shake it or pull on it for a short time, to get a long(er) time of use. Depending on how well nourished the user might be, this sets a power envelope between 1 and 2 watts. You can generate 20 watts (though it is hard work) and you would like to get a ratio of at least 10 to 1. Crank for 1 minute and get 10 minutes of use -- feels like a minimum.

The One Laptop per Child non-profit association’s XO laptop approaches such a regime and had to do so because about 50% of the world’s children have no power, at home or at school. Even those schools that do have power do not want to wire each desk as if it were an office. Achieving such low power also enables small foot print solar panels, equally important.

The result is that over 1.5 million kids in 35 countries, in 25 languages, have connected laptops. Villages without power, cell phone or TV have 6-12 year olds connected to the Internet, sharing 10,000 books (100 in each of 100 laptops), teaching their parents how to read and write. That is the power of powerless.