

## From Ethan Zuckerman's post 'Innovating from constraint':

1. Innovation (often) comes from constraint (If you've got very few resources, you're forced to be very creative in using and reusing them.)
2. Don't fight culture (If people cook by stirring their stews, they're not going to use a solar oven, no matter what you do to market it. Make them a better stove instead.)
3. Embrace market mechanisms (Giving stuff away rarely works as well as selling it.)
4. Innovate on existing platforms (We've got bicycles and mobile phones in Africa, plus lots of metal to weld. Innovate using that stuff, rather than bringing in completely new tech.)
5. Problems are not always obvious from afar (You really have to live for a while in a society where no one has currency larger than a \$1 bill to understand the importance of money via mobile phones.)
6. What you have matters more than what you lack (If you've got a bicycle, consider what you can build based on that, rather than worrying about not having a car, a truck, a metal shop.)
7. Infrastructure can beget infrastructure (By building mobile phone infrastructure, we may be building power infrastructure for Africa.)

## And Amy Smith on rules for design in the developing world:

1. **Try living for a week on \$2 a day.**
2. That's what my students and I do when I teach my class about international development. It helps them begin to understand the trade-offs that must be made when you have only very limited resources. More broadly, it was in the Peace Corps in Botswana that I learned to carry water on my head, and noticed how heavy the bucket was; and I learned to pound sorghum in to flour and felt the ache in my back. As a designer, I came to understand the importance of technologies that can transport water or grind grain.
3. **Listen to the right people.** Okay, so you probably don't know what it's like to carry fifty pounds of firewood on your head. Well, don't pretend that you do. Talk to someone who has done it. I believe that the key to innovation in international development is truly understanding the problem, and using your imagination is not good enough.
4. **Do the hard work needed to find a simple solution.** As Leonardo da Vinci said, "Simplicity is the ultimate sophistication"—and it is the key to this type of design work.
5. **Create "transparent" technologies,** ones that are easily understood by the users, and promote local innovation.
6. **Make it inexpensive.** My friend Paul Polak has adapted a famous quote to the following: "Affordability isn't everything, it's the only thing" and there's a lot of truth in that. When you are designing for people who are earning just one or two dollars a day, you need to keep things as cheap as you can and then make it even cheaper!
7. **If you want to make something 10 times cheaper,** remove 90 percent of the material.
8. **Provide skills, not just finished technologies.** The current revolution in design for developing countries is the notion of co-creation, of teaching the skills necessary to create the solution,
9. rather than simply providing the solution. By involving the community throughout the design

process, you can help equip people to innovate and contribute to the evolution of the product. Furthermore, they acquire the skills needed to create solutions to a much wider variety of problems. They are empowered.

### And Paul Polak via Nextbillion;

1. go to where the action is
2. talk to the people who have the problem – and LISTEN to what they have to say
3. learn everything there is to know about the specific context
4. think and act big – don't do anything that can't reach a million people
5. think like a child – children have no limit to their thinking
6. see and do the obvious
7. if somebody already invented it, you don't have to
8. design to critical price targets
9. design for measurable improvement in the lives of more than a million people
10. work to practical, three-year plans
11. keep learning from your customers
12. stay positive – don't be distracted by what other people think (if there
13. were a need for it, the market would have already created it)

### So here are 7 hints/tips/rules;

1. **Understand** by observing the environment, infrastructure, culture and lives of people by being there.
2. **Think creatively**: start big, use constraints as a filter and find the simplest solutions.
3. **Increase user acceptance**; build on existing platforms, lower costs and beware of radically different ways of doing things.
4. **Deliver value**; what are the benefits for people using the end product, does it improve a persons life?
5. **Economic sustainability**; provide financial motivation for continued growth over time. Empower people by improving their economic or social status.
6. **Share** knowledge and skills to continue the innovative process both to and from people and communities.
7. **Peripheral vision**; keep a look out for other challenges or new solutions all the time.