Mastering the Machine Revisited
Poverty, Aid, and Technology
By Ian Smillie

Ian Smillie's book takes an in-depth look at the complexities of man's struggle to combat poverty with technology through aid and development over the past 50 years. He says that many countries in the south have continually been taking cues from the north that development equals growth and that growth equals industrialization. These practices are usually capital intensive and require the import of raw materials and foreign technicians. Debt and energy problems are the most common crisis to occur when countries continue trying to implement 'advanced technologies' developed for radically different situations and guided by distorted policy. He discusses how this is large in part due to an unprecedented number of non-technical people exerting more influence on the technical sector than ever before.

Smillie suggests , however, that an economic evolution can occur naturally and be beneficial rather than taking these 'quantum leaps' in development as Schumacher put it. He believed that 'intermediate' technologies, developed with and for the people would be most beneficial. The beaurocrats, economists, corporate planners, and aid agencies cannot keep the ideas and connections of the people fresh. Even NGOs, which at their best, are innovative, adaptive, and low-cost, are able to focus on environmental issues, and develop 'intermediate' technologies, many times still lack empathy and proper self-evaluation. Over inflation of success and constant reinvention of the wheel end up being common trends as a result. Most of the time it is cultural differences, among aid agencies and their recipients, which lead to failure and cause projects to end up low quality, unsustainable, or overall insignificant.

Self-sustaining or sustainable development will continue to be doomed as long as documentation and understanding of failure is reserved. Too often developers define sustainability in a fashion that fits nicely into their entry and exit strategies without considering the trade-offs or what might happen if fluctuations in the environment or market occur later on. But appropriate technologies come about in an appropriate manner and with adequate room for self-correction. Technology in the US for instance was accrued over several generations and could not exist as it does today without the grand array of supporting services available and environmental conditions. Transferring out technologies without all these auxiliary services and adequate resource access would be far from appropriate. E.F. Schumacher, who wrote Small is Beautiful, said "Development like all learning is a process of stretching. If you attempt to stretch too much, you get ruptured instead of a stretch..."

It may be proposed that it is the locally formed associations which form the bulk of the basis for development. It wasn't the heavy handed Church of England but the reformers and reform movements which spurred change. In another comparison, French political writer, Jacques de Tocqueville spoke of the propensity of early Americans to create and join associations and that the 'art of association must develop and improve among them at the same speed'. As de Tocqueville put it 'The more government takes place of (local) associations, the more individuals lose the idea of forming associations and need the government to come to their help. This is a vicious circle of cause and effect…' The role of these associations or NGOs is to supplement, complement, and challenge the government while, ultimately facilitating the ownership and the responsibility into the hands of those it benefits and do it sustainably. One particular definition of 'sustainability' calls it "the ability to maintain productivity, whether in a field or farm, or nation, in the face of stress or shock". The double edged sword is that, and even Smillie says

himself, that the involvement of government and aid agencies is necessary to creating real change. The challenge is in creating policy that will help to merge the public and private sector in a more seamless fashion.

Working on a project that targets the specific needs of a group requires utilizing the existing skills and knowledge of that group, perhaps even building on them. It also requires a deep understanding of the recipients and involving them in the planning and implementation. Even despite doing all this a project can fail. All projects fail in so much as they are never completely free of problems. Success is limiting. It requires the absence of problems and therefore no mistakes to learn from, leaving no room to grow. Development must tolerate failure and learn from it. This does not imply the use of poor people and poor countries as a testing ground for underdeveloped technologies or generalized concerns about the environment. It means tackling the immediate needs of the people with the people by setting clear and reasonable goals. In the lexicon of development Smilie defines a champion as any person who is devoted, by a labor of love, to the design, the manufacturing, and the dissemination of a technology. In conjunction with production by the masses, utilizing 'intermediate' technologies, offers promising hope for the future state of the things. Economic growth does not always equal poverty alleviation but it can. Development needs more champions of 'intermediate' or appropriate technologies without which the 'demon' of mass production will continue to run rampant destroying our social, environmental, and economic livelihoods.