A Vision for a Green Afghanistan

Brief proposal for a comprehensive strategy to develop a competitive and sustainable Afghanistan

NATURAL CAPITALISM SOLUTIONS

A 501(C)3 NON-PROFIT ORGANIZATION

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Afghanistan faces enormous challenges. After 25 years of war, much of its infrastructure is in ruins, or was never completed. In the wake of 9-11, the international community, recognizing the threat to world peace of a devastated Afghanistan, pledged billions of dollars to rebuild the country. This has created a unique, but narrow window of opportunity to rebuild the country using the growing body of best practice in sustainable technologies.[1] Every donor agency has wording in its charter pledging adherence to this approach, but few are implementing it. Natural Capitalism Solutions proposes to work with Afghan companies and officials, with the donor agencies, as well as with leading international practitioners of sustainable development to outline a strategy to ensure that donor money leverages the creation of viable, locally-owned private businesses, able to sustainably meet the needs of Afghans even after the International eye has moved on.

Around the world, aid money tends to create perverse versions of a welfare society, dependent on big western contractors and foreign NGO's. When the money runs out and the westerners leave, the country struggles on in poverty. In Afghanistan, where success is not only important to the Afghans but a matter of American national security, it is urgent that Afghan reconstruction create a robust infrastructure that delivers profitable and stable businesses as it rebuilds the entire economy. This Green Afghanistan strategy will not only describe how to implement international best practice in sustainability, but also be a model for development funding around the world.

Afghanistan must rebuild everything, providing housing, energy supply, food, water, sanitation, transportation, healthcare and security. At present however, official proposals for reconstruction make little effort to use state of the art sustainability technologies, despite the fact that they work better and are better suited to poor, widely distributed populations. Instead, most of the reconstruction projects wind up using cast-off equipment and approaches from Pakistan or the West simply because they have a lower up-front cost or vendors are familiar with them. Existing reconstruction efforts approach each problem in isolation, missing opportunities to use whole-systems design to solve multiple problems with the same resources.

Using outdated technology and conventional thinking rather than best practice will ensure that Afghanistan remains the 6th poorest country in the world. It will also waste the hard-won legitimacy of the Karzai government, and expose the country to the influence of warlords who are counting on Karzai to remain the "Mayor of Kabul".

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[1] See Hawken, P, Lovins, A. and Lovins, L. H. (1999) *Natural Capitalism,* Little Brown; Hargroves, K, Smith, M, 2004, *The Natural Advantage of Nations*, Earthscan, 'Lovins, A., Datta, K., Feiler, T., Rábago, K., Swisher, J., Lehmann, A. and Wicker, K. (2002) *Small Is Profitable: The Hidden Economic Benefits of Making Electrical Resources the Right Size*, available from Natural Capitalism Solutions.

Energy is only one example of how U.S. taxpayer money is being spent on sub-optimal technologies. Across Afghanistan, most cooking and heating is done with wood or charcoal, deforesting the mountains and polluting the skies. Electricity, unaffordable to most of the people, comes from small generators burning diesel imported from Pakistan. As of January 2005, $4 million per month of USAID money was buying diesel just to run the North Kabul power plant, at a cost of 23¢ per kilowatt-hour (average U.S. power costs 8¢/kWh.). In 2006 the figure rose to $80 million for the five winter months. Because of contaminated diesel and old generating equipment the electricity is available only sporadically, and producing it contributes to the dense smog that afflicts Kabul. Even a fraction of this money, diverted to enabling local businesses to begin providing solar electricity, would result in more reliable power at roughly the same cost, while building viable local businesses, creating jobs, reducing dependency, and cleaning the environment.

USAID's own guidelines state, "Environmental sustainability is integral to USAID's overall goal. To meet this goal environmental considerations shall be incorporated into results planning, achieving and monitoring."[2] Little effort is being made by USAID to support the use of renewable, distributed generation, even though this has been shown to be more reliable, and more cost effective in communities in the United States and Europe.[3] A high priority should be put on programs to deliver renewable energy in ways that leverage local capacity.

USAID is financing the construction of new medical clinics with little thought given to insulation, solar orientation or other green building technologies that would enable the clinics to heat, cool and power themselves. Forty clinics were supposed to have been constructed, but so far only one has been, and it doesn't work very well. With no energy budget, the doctor had to beg for a tiny diesel generator and the fuel to run it. Conversations with the architect hired to assist this program revealed a pervasive unwillingness by U.S. contractors to consider implementing green building practices, even though these would enable the clinics to run more effectively and at lower cost.

In January 2005, Asian Development Bank announced a $750,000 program to promote the use of renewable energy. Such efforts ought to be coordinated, and should support efforts to build schools and clinics. In the event, the money was largely wasted, spent to put a hybrid wind, solar

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[2] Section 204.2 of USAID guidelines: http://www.usaid.gov/pubs/ads/500/578.pdf

[3] For example, in 1989, Sacramento California shut down its 1,000 megawatt power plant. Rather than invest in any conventional centralized fossil fuel plant, the local utility met its citizens' needs through energy efficiency, and such renewable supply technologies as wind, solar, biofuels, and distributed technologies like co-generation, fuel cells, etc. A recent econometric study showed that the program has increased the regional economic health by over 180 million dollars, compared to just running the existing nuclear plant, The utility was able to hold rates level for a decade, retaining 2,000 job in factories that would have been lost under the 80% increase in rates that just operating the power plant would have caused. The program generated 880 new jobs, and enabled the utility to pay off all of its debt.

installation at Masood's tomb in the Panjshir Valley, and a few photovoltaic panels on a traffic circle in Kabul.

The official Afghan energy plan is to use several hundred million in donor money to bring a power line to Kabul from the north carrying "excess" Tajik hydroelectric power. Even if the line, which will take several years to build, is not cut by hand-held rockets, it will only bring power to 20% of the country. Bringing power to the rest of the country, critical to enabling development, can only be done cost-effectively using distributed generation.

Afghanistan has little money, but is rich in wind, sunshine and flowing water. Modern wind machines are the fastest growing electricity supply technology around the world, delivering power in good sites for as little as 3¢ per kWh. The next fastest growing energy supply technology is solar electric, even at current prices.[4] Along with solar thermal and micro-hydro, such distributed, renewable generation is the only approach that makes sense for meeting the needs of dispersed villages.[5] Sunflowers or other oil-rich crops grown to provide biodiesel would reduce the vast imports of diesel from Pakistan now used for transport and generators, and could be a viable alternative for the farmers now growing poppies, providing them a legitimate source of income.

Conversations with officials at the Ministry Energy[6] revealed high interest in this approach, but few resources to pursue it. Similar conversations with the Dean of Engineering at Kabul University showed great enthusiasm for a program to train renewable energy technicians, but no resources to undertake such a program.[7] The Department does not even have functional computers for its students.

Collectively, the array of sustainability practices such as efficient and renewable energy supplies, green building technologies, efficient water treatment and delivery systems, and sustainable approaches to providing food and health care can do a better job of meeting development needs

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4 Solar photovoltaic prices are falling rapidly. A company in California is introducing a new production process that will reduce prices to 3¢/kWh within four years. They would be interested in licensing this technology to Afghans so that the panels and attendant jobs could be produced in Afghanistan. A wind company with a new type of wind machine that can be built by any competent metal fabricator is similarly interested in licensing this technology. A company with a solar powered Internet Service Provider is likewise very interested in doing business with Afghan companies. The world leader in biological waste water treatment is willing to go to Afghanistan and teach how to build such treatment plants.

5 Conversations with the Mayor of Bamyan, the community that suffered the destruction of the massive statues of the Buddha by the Taliban, along with the murder of the 4,000 people living in the monastery, revealed that there is a micro-hydro installation on which construction was almost finished when the Soviets came in and stripped it. Installation of turbines and a minimum of work on the penstock would provide a megawatt of power, enough to power most of the Bamyan area. This opportunity was not even on the radar of USAID.

6 In January 05, Hunter Lovins met with Ismail Khan, the new Minister of Energy, and the Director General of Planning. Both asked her to serve as an advisor to the Ministry.

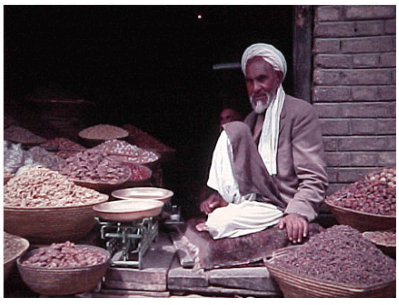
7 In conjunction with Bernard Amadei of Engineers Without Borders, Hunter is working to bring a renewable energy training program to the University of Kabul, along with a curriculum in other sustainable technologies.

in Afghanistan than the conventional approaches offered by the western consulting firms with whom USAID typically contracts.

Sustainable solutions are easier for local small businesses to deliver, than are the conventional approaches favoured by USAID's usual contractors. If some of the money now going to conventional solutions is diverted to financing, training and supporting local entrepreneurs, Afghans could protect and enhance not only their natural capital but also their social fabric.

Existing Afghan (and many Western) industrial systems tend to be highly inefficient. Neither Afghanistan, nor the global environment, can thrive with such inefficiency. Before development projects are funded they should be subjected to a methodology that will determine whether they will:

1. Implement best practices in energy and materials efficient technologies and sustainable business practices in ways that enable individual residents and businesses to increase the efficiency with which they use resources,
2. Deliver safe, robust infrastructure that provides renewable energy, safe water, sanitation, housing and other basic needs to communities and industries, while reducing pollution from transportation and production,
3. Support Afghan Universities to innovate locally appropriate sustainable solutions and build partnerships with the growing private sector,
4. Train Afghan entrepreneurs and businesspeople in sustainable technologies like energy efficiency technologies and renewable supply, green building techniques, ecological sanitation and sustainable agriculture,
5. Make infrastructure decisions based on total cost accounting. Decisions based on lower first costs often lead to systems reliant on resources for which costs are unpredictable and "always rising" in the future. Life-cycle accounting should also include such indirect or "externality" costs of traditional resource use as air/water, pollution, risks of climate change, and risks to national security.[8]. Conversely, sustainable technologies such as renewable, decentralized systems generally create more local skilled employment opportunities; and opportunities for locally-owned companies.



8 Renewables are increasingly a cost-competitive resource, but can appear uncompetitive unless the whole system costs of the energy system are counted. For example, diesel generators may appear to be the lowest cost option if the running costs of supplying the diesel are not counted, if the costs of health effects of the pollution are ignored, and if the cost to the economy of importing the diesel from Pakistan is not included. It is also important to analyse the costs of various options in conjunction with the site.

The organizations working together on this collaboration include:

1) *Natural Capitalism Solutions.*, a Colorado-based company, helps business, governments, academic institutions and communities implement well-designed sustainability initiatives to achieve increased competitive advantage. NCS encourages the development of sustainable economies on global, national and local levels. NCS' president, Hunter Lovins has been working in Afghanistan and abroad to convene the capacity to enable the country to create and implement a strategy for a Green Afghanistan.
2) *Engineers Without Borders*, partners with developing communities around the world to enable them to improve their quality of life by implementing environmentally and economically sustainable engineering projects. It brings expertise in a wide array of village scale sustainable technologies that developing communities can own and operate without external assistance. EWB empowers communities by enhancing local technical, managerial and entrepreneurial skills.
3) *Altai Consulting,* is an Afghan company specialized in strategic consulting, research and communication. For over a decade Altai has analysed development needs and implemented programs to solve problems using local resources and people. Its client base is composed of major international aid agencies and private sector organizations. Its staff is fluent in Dari (the *Lingua Franca* of Afghanistan).