

## CHAPTER 4

# The Option Available to Everyone

## *Mobilizing Human Capacity*

Seeds still fascinate us. Somehow these small capsules enclose specifications that produce structures as complicated and distinctive as a giant redwood, the common day's-eye (daisy), and a beanstalk. They are the very embodiment of emergence—much coming from little. . . . We will not understand life and living organisms until we understand emergence.

John Holland<sup>1</sup>

### THE IDEA THAT ORDER CAN EMERGE

When development practitioners speak of empowerment, it is often as a quasi-mythical phenomenon, easy to recognize but nearly impossible to define. Thus, while its potential is recognized, the dynamic is often largely dismissed because it is so difficult to measure and even harder to predict. However, empowerment is real, and as the near-consensus regarding its importance as summarized in Chapter 3 suggests, it is increasingly recognized as fundamental to social change, especially given the increasingly recognized limits to the sustainability of current economic models. In such a context, “you know it when you see it” is hardly an adequate understanding.

Do we humans ride into the future lacking a reliable process for managing the quality of our lives, just waiting for the fundamental dynamic or the magic solution that will shape our futures to emerge? Can the processes whereby the people take ownership of the future be sparked, guided, and replicated in the myriad contexts and conditions under which communities attempt to adapt to the turmoil of the modern world?

Empowerment is human energy. In previous chapters, we have described its functioning in Rima's actions on a Himalayan ridgetop, traced its success

and failures in Nepal, and pointed to the ways this understanding differs from the dominant literature on development and social change. In this chapter, we will draw on parallels from physics to understand it as energy. The discipline of physics is, after all, the study of energy, and while human energy lies outside its purview, there are parallels. Drawing on concepts elucidated in physical energy helps us crack open the “black box” of how empowerment works, and thus how it can be proactively used. In so doing, let us be clear that we use the parallels from classical physics metaphorically; actual correlations of physical energy phenomena to those of human energy are not direct. Furthermore, while such a comparison does give us concrete ways to analyze this difficult topic, the linear models of classical Newtonian physics are inadequate for an understanding of the complex context of social change.<sup>2</sup> Thus, throughout this chapter the use of classical physics is balanced by continued incorporation of the concept of *emergence*, another construct physics uses to elucidate energy.

## THE CHALLENGE OF MEASUREMENT

One of the key difficulties in defining empowerment is its measurement. To engage empowerment in a scientific manner requires a method of measuring it other than the (frustratingly apt) “you know it when you see it.” However, direct measurement of the always-adapting interrelationships through which empowerment is generated is impossible. Empowerment is not stable enough or discrete enough to be measured directly. Instead, measurement must depend on proxies that show the consequences of empowerment. Over the years, we have experimented with a range of metrics, perhaps the most comprehensive compendium of which has been gathered by the World Bank.<sup>3</sup> Chapter 7 has a more thorough discussion of monitoring and measurement, but among the proxy indicators we have used, several have proven both informative and easily measurable: increased mobility, influence in decisionmaking, readiness to seek help, and expanding education.

Whereas empowerment itself may be hard to measure, its consequences are not. Table 4.1 presents an example of the use of these proxy indicators in an application in the highlands of Afghanistan.<sup>4, 5</sup>

Empowerment blossomed in the Rostam and Saya Dara valleys in the Bamyān Province of Afghanistan when the community was organized through women’s action groups (similar to the ones Rima organized in Bameng), about which more details will be provided below. In this application in Afghanistan, training began in “Women’s Only Workshops,” and was then structured through women’s action groups where the women applied the principles and tasks that caused empowerment to emerge. What confirms that this was a process of emergence from community energies rather than traditional

**Table 4.1** RESULTS FROM EMPOWERMENT TRAINING OF ROSTAM AND SAYA DARA WOMEN\*

|  | Before Training | After | Statistical Significance |
|--|-----------------|-------|--------------------------|
| Can you now travel to attend training?             | 39.7%           | 76.3% | .001                     |
| Can you influence decisions in family and village? | 67.0%           | 77.5% | .05                      |
| Does education improve family and village?         | 87.3%           | 99.4% | .001                     |
| Will you help a woman having a difficult delivery? | 36.8%           | 88.4% | .001                     |

\*To access the simple but full survey used: <http://www.seed-scale.org/multi-media/resource-tools/afghan-empowerment-survey>

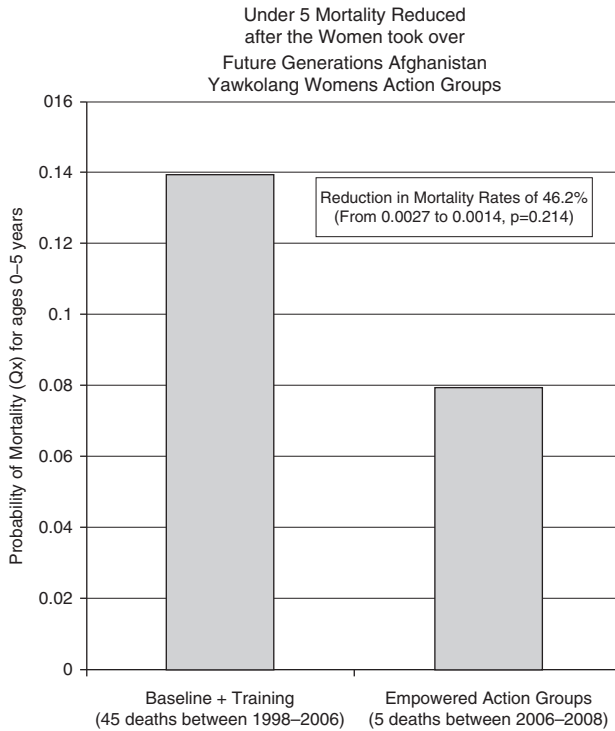
services is that only training was provided in Rostam and Saya Dara, after which the staff departed. No new service was introduced. The intervention was solely one of improving actions by the women: first in terms of what they did by themselves, then by what they did connected to each other, and then in connecting to existing services.

Over the next two years, not only did the women's action groups continue, but change also radiated from health improvements to wider civic actions. These changes resulted in a number of tangible health behavior improvements (see Table 4.2 for representative changes), which collectively caused under-age-five child mortality to decline by 46 percent (see Figure 4.1). Health was being transformed by the community, not by outside services coming into the community.

Major life changes emerged because of the new ways communities were applying their energies. They were changing because they wanted to, and knew how; they were not being forced or incentivized. Complex social dynamics of rural Afghanistan, specifically as related to the behaviors of women, had been fundamentally altered. The intervention that caused this had lasted only a couple of weeks, conducted by trainers with modest ongoing supervision led by the remarkable Dr. Shukria Hassan. By contrast, a service-delivery program would have stalled when external inputs stopped.

**Table 4.2** HEALTH BEHAVIOR CHANGE FOLLOWING TRAINING OF ROSTAM AND SAYA DARA WOMEN

|   | Before Training | After Training |
|---|-----------------|----------------|
| Using clean spring water for drinking   | 45%             | 74%            |
| Using surface water for drinking        | 46%             | 22%            |
| Getting skilled help for birth delivery | 37%             | 98%            |



**Figure 4.1.** Reduction in under age-five child mortality before and after empowerment training.

Furthermore, the achievements of this program compared to those from the best such programs in the country (with whole health centers and professional staff in support) achieved reductions in child mortality of 20 to 23 percent during this same period, whereas reductions seen here were 46 percent.

Doubling the best of what traditional service delivery could achieve for a fraction of the cost (10 percent) is powerful. To understand better what happened, in 2008 a team returned to these valleys. To conduct their assessment, the lot quality assurance sampling assessment method used two years before was strengthened by employing a retrospective pregnancy history methodology developed by Professor Stan Becker at Johns Hopkins University.<sup>6</sup> Careful retrospective pregnancy histories were conducted for all the women in the two valleys, even tracking down women in the high pastures so that a full population census was done of all women. How had women equipped with only two weeks education nearly halved the child mortality rate in their villages? It was not professional services being delivered to them, but rather their changing the actions in their homes. Because of what they now knew the women now only took their children to the nearest clinic for complex problems requiring advanced medical knowledge, while childbirth and the majority of illnesses were treated

in the home. Three dynamics comprised the intervention in Rostam and Saya Dara: gathering the women into reinforcing units, providing education so they learned more effective behaviors, and ongoing supervision by a local facilitator (a local mullah). The impact from these three caused subdued and scattered women's energy levels to be amplified into empowerment.

As with Rima in Bameng, change happened quickly: in this case with modest financial cost given that the change agents (Rima's earlier role) were paid for their teaching. What was innovative about the monitoring of this project in Rostam and Saya Dara was its ability to separate out attributes of empowerment and measure them. This is important because it meant not just that change occurred among the women who were organized and trained (i.e., the women's action groups), but also that measurement was population-wide through a full population census. Getting to 100 percent of a population in war-riven Afghanistan required perseverance, but exceptional cooperation was achieved because the women, who knew everyone in the region, were conducting the survey themselves (with parallel spot checking by our external team for accuracy). Thus, the process of conducting the survey itself became the locus of further empowerment. The mobilization introduced through the action groups radiated out through all the women, even those off at considerable distance tending flocks in the high pastures.



**Figure 4.2.** Women surveyors conducting the census of households in the Rostam and Saya Dara Valleys. One hundred percent of the households were contacted over three visits. (Photo credit: Besmillah Sakhizada)

Drawing on concepts of energy as developed in physics, it becomes possible to frame the dynamics of human energy. In its physical form, human energy might be measured in calories, but such a literal yardstick is insufficient to explain how humans create society.<sup>7</sup> Society is, after all, much more than the sum of labor-producing machines. We have proposed already that human energy is driven by aspiration, an aspect as difficult to measure as it is real. Aspirations can be harnessed into actions in the revolution of rising aspirations, or frustrated until exploding into armed revolution—the former seen in Bameng, the latter in Nepal. Human energy unfolds in mutating forms: aspirations, actions, affection, aesthetics, anger, to name a few, all of which have changed society for better and for worse, and all of which, though distinct, can flow one into another.

## **BACKGROUND ON EMPOWERMENT IN AFGHANISTAN**

Some background on empowerment in Afghanistan is helpful. Across the centuries, the Afghan people have humbled empires, from Alexander, to Genghis Khan, to Britain, to the Soviet Union. This ability to humble empires in the past was no more rebellion than it is insurgency today, for the Afghan people were never subjects. It is people insisting on controlling their own lives.

Following the overthrow of the Taliban in 2002, massive shipments of tents, wheat, clinics, schools, roads, telecommunications, and even bottled water came into the country. With these commodities also came an invasion of accounting ledgers and donor stipulations as to what must be done. Despite careful receipts and notations in the ledgers, the gifts reached the people in only limited amounts. The elections, carefully monitored for fairness, put in place leaders who were not monitored once they took office and perpetrated fraud. The mandates imposed to protect and advance their women ended up making them vulnerable to terrorism. In such contexts, when actions to do good all seem to go wrong, the explanation does not lie in the specifics, but with the application of a wrong action model. In this case, the wrong model was the mindset of the West, that of control: control of terrorists, control of local populations, control in creating the new government. A resource stream implemented each of these goals, with accounting back to the donor. In these efforts, recognition that the people themselves wanted control over the processes of change was lost. The following encapsulates one way the story can be told, summed up in the flowering of poppies.

In the summer of 2003, in fields that the year before had grown wheat, poppies grew through the highlands now freed of the Taliban and the ban they had imposed. A record crop was harvested, the elixir sent for processing. The next summer more fields were planted in poppies. Harvests increased so much that by 2007, three-quarters of world opium production came from Afghanistan's

fields, and by 2009, 90 percent. Promoting this growth was a resurgence of the defeated Taliban, Al-Qaeda, and warlords who, as news reports make clear, created a partnership of convenience.

Colleagues who had been working in the highlands building partnerships (partnerships that had adapted across ten years of Soviet occupation, seven years of civil war, and five years of Taliban) reported that on various occasions when the Taliban and Al-Qaeda dispersed, commanders gave out poppy seeds, saying, “Go home, plant these. They will produce many times the profits you can get from wheat. First our *jihād* struck America from the sky. Now we will enter America through her blood veins.” With that, the fighters scattered by pickup truck, donkey, and motorbike. The insurgency’s efforts at partnership had begun with sequence of actions that farming people knew how to do: plant seeds, harvest, send off processing, and reap the profits.

In the meantime, a downward spiral of misguided international action had begun. Afghanistan had just experienced four years of near-biblical-proportion drought, so foreigners started bringing bags of wheat to halt an impending famine. The wheat was given away, and while it did ameliorate the famine, it also glutted the market, causing wheat prices to tumble. People then asked, Why grow wheat? Practically, they turned to the alternative in the little black seeds. At first poppies were planted in hidden valleys, then as harvests proved the way to acquire the modern commodities that had now burst onto the local market, soon all but the most public wheat fields were transferred to poppies. On some level, the people were aware that those who had so recently oppressed them were being helped to return. But against the



**Figure 4.3.** Community meeting: The crowd is skeptical of promises being made. (Photo credit: Daniel Taylor)

backdrop of recent famine and austerity juxtaposed with the hope of a better life after war, the seeds provided entrée into the now-tantalizing world of the cash economy. Pragmatic farmers turned their attention to tomorrow rather than the day after.

For the donors meanwhile, the more wheat and assistance they could give away, the more “management overhead” money they made. Moving money was their incentive, not building positive feedback loops of rising energy.<sup>8</sup> Partnerships were being built, but they were for profiteering. Accounting ledgers confirmed the bags of wheat delivered, wells drilled, immunizations given, miles of new roads built. But all these are measures of contractor performance, not growth of local capacity. Indeed, former Afghan finance minister Ashraf Ghani has estimated that 90 percent of the millions of foreign aid invested in his country was wasted, channeled into overhead and contracts by international agencies.<sup>9</sup>

The Afghan people wanted much of what came from the donors (schools, clinics, water wells). After twenty-three years of conflict they knew how to survive a war, but what were the skills to survive a peace when it comes bearing gifts from outside rather than readjusting the relationships among people? Officials came to communities, then drove away in Land Cruisers after making their offers with paperwork the people could not read, wrapped in further paper layers requiring steps they did not know how to take. While donors must attend to their sources of money, contracts are not effective if not also expressed in a way the people understand. School buildings were put up where one school must serve a certain population number, causing schools to be built between three villages . . . and then vandalized. Similarly, clinics had equipment that contractors thought was necessary but local health providers could not use—or clinics were built with only one door, making it impossible for conservative Muslim women to enter. Yet with free things on offer, Afghans filled out the forms. A new world had burst into their lives as though jumping out from the pictures on their new televisions. The common requirement of contributing some labor, as almost all projects expect, is not a foundation for partnership when directions are coming from outside. There had never been a true national government, and the new one in Kabul grabbed at the opportunity to use international support to establish itself. The internationals were trying to control the insurgents, but the model of attempting to buy participation through giving was a model not of partnership but of vassalage and control.

Meanwhile, the group that had been militarily trounced managed to partner with people who, by and large, did not want to be partners with them by utilizing a commodity that the people knew was bad. Why did the international community that was itself now risking domestic political capital, spending billions of dollars, and sending its young people to die, lose the partnership potential that had been in their hands? While there was no doubt much corruption in the process, the answer does not rest in blaming corruption (and certainly not



when that corruption is left abstract and unattributed as if often the case in international reporting on the subject), just as it does not lie in blaming the Afghan people, who obviously will take free gifts if offered. Nor does this represent a lack of sincerity from the internationals, who were giving not only their funds but their lives in a well-intentioned effort to help. The answer lies in the wrong mental model being used in this process, a model of external design, a model of external control, a model centered around a scarce commodity that caused people to compete for it rather than for the objectives for which it was being generously allocated. The Afghan people were victims of good intentions, ignored as partners, victims of the wrong operational model.

People in mud-brick villages, where one-quarter of the children die before age five, kept signing papers, but the papers providing accountability back in other countries were disconnected from local reality. And, when coupled with a whole sequence of actions that sought to take control from the people (including exploitive, corrupt local leaders), that disconnection created the context for inflaming a push-back that was being encouraged by a recovering insurgency that was now able to regroup because it had money. Well-digging stopped at the depths specified in the contracts, whether or not they had



**Figure 4.4.** Afghan elder instructing youth in farming techniques. (Photo credit: Daniel Taylor)

reached water. Children were not going to school because the new building had no teacher. Apricot and mulberry orchards were still denuded because, while the mandated saplings had been planted and counted, soon thereafter they were eaten by roving donkeys. Contract terms in all the above instances were met. But the energy that was growing in people was anger.

## GETTING THE MODEL RIGHT

As social change goes forward, if progress is apparent, it is easy to forget the imperative of not being content and of continually refining the ideas. Getting the process as effective as possible at the beginning is key to initiating empowerment in which an idea advances the quality of life and that feeds back to build the sense of community ownership that calls more people to participate. First iterations at the beginning, even when they seem to be working well, can improve. As with a mathematical curve in which the trajectory is established in the first iterations of a formula's application, it is the beginning of social change that initiates the cycles that accelerate rising capacity inside the community, or start tugging that community apart. Growing community energies right from the beginning is what Rima did so splendidly. Getting the ideas right at the beginning makes it easier to get them to grow later. In the Afghanistan instance, the international model of complicated service-delivery set in motion aspirations that were antithetical to engaging local actions, whereas the poppy-growing engaged local capacity. What the international actions started was exploitation, condoned by both international and national interests. In 2005, to remove at least a level of contractor and international NGO meddling, one Afghan ministry told half of the foreign organizations to leave the country. Instead, the international organizations forced the Afghan minister who was trying to clean up the system out of his job. As with the faked carpet scandal in Nepal, the message got through. No one else tried to change the system, which by then was being exploited at the highest levels of government.

Because flawed beginnings were allowed to grow, the Afghan people were alienated. One unintended consequence became the fact that the Afghan people were missing in action when it came to the war effort. Whereas at first just Al-Qaeda was the foe, following a flawed beginning as the years passed, despite elections, the Afghan people were excluded from the nation-building process. (In a policy-level correlate to the poppy seeds, the exclusion of the Taliban from the negotiation process at the critical nation-building Bonn Conference forced them into a militant position rather than offering them the role of democratic opposition which would have engaged them in governance rather than war.) While many Afghans were (and remain) deeply opposed to the Taliban, they were disallowed a way to work with (or publicly argue with)

their fellow citizens. To build a nation, partnerships must be built across differences with people and government working together, and the government that had been imposed in Afghanistan did not engage the people across the breadth of the social, political, and (most important) ethnic spectrum.

The alienation that unfolded is a tragedy because there was ready engagement of the people at the beginning. The year 2002 was one of hope; conditions for partnership were ripe. Afghanistan in 2002 was in that golden space of apparently endless possibilities that can emerge in the aftermath of crisis described by William Wordsworth at the end of the French Revolution as, “thrilled with joy, . . . standing on top of golden hours, human nature seeming born again.”<sup>10</sup> Such times are special. Empowerment is poised, indeed pregnant, ready to give birth to a new life for people. But in Afghanistan, with the people ready, the positive momentum slipped away. What had been a war to “smoke out” one man, Osama bin Laden, became a war against millions of people. The energy of the people turned. If ever there was a case study in how to turn off human energies, that example is found in recent international assistance in Afghanistan. The Afghan example is extreme; it is at least hopeful that international action will never repeat these errors.



**Figure 4.5.** This Hazara (most discriminated-against ethnic group) woman understands the dynamics of the Afghanistan struggle. She wears three coins, one from the United States, one from Pakistan, one from Iran. (Photo credit: Daniel Taylor)

## FEEDBACK LOOPS TO CAUSE ENERGY TO GROW

Emergence demonstrates how order emerges from the process inside constantly adapting complex systems.<sup>11</sup> Growth that occurs is often not like a plant steadily growing from a seed, but like in Afghanistan, where it is a product of sudden swings: first in a positive way, with “the golden hour” of optimism and joy, then in a negative way, with the turn to a rising insurgency. Energy feedback loops—times when energy cycles back on itself and causes energies to rise or fall dramatically—prompt these leaps one way or the other.

The creation of a hurricane provides an illustration. In keeping with the Second Law of Thermodynamics, heat disperses. However, at times over the oceans, rising energy causes other energy, not to disperse, but to gather, as rising water vapor condenses; the low-pressure zone beneath causes more warm, moist air to be pulled in, which rises, releases its energy above, and more energy below is pulled in. This is a positive feedback loop. So long as a negative feedback loop does not interfere (typically cold drawn up from ocean waters), then as the cycle goes around again and again, hurricanes and typhoons self-assemble. This energy-gathering, drawing in more, and that drawing in still more, is a concept that transfers to social situations, like the nation of Nepal when it said “Enough!” to the monarchy. When applied to human energy, this positive feedback loop is what we are calling *empowerment*.<sup>12</sup>

In Afghanistan, first a positive feedback loop was operating, then a negative one.<sup>13</sup> It was similar to the emergent patterns seen in a flock of birds suddenly changing direction, or a colony of ants working, or sand particles swirling across the ground gradually forming ordered dunes, or the adaptive growth of city slums and shantytowns.<sup>14</sup> In places where there is no controlling force, order comes from one event feeding into other events at a self-exacerbating pace. In trying to spark such change intentionally, the key is iterative action. Make one trial; if it works, repeat it. More likely, that first trial does not work, and the next trial needs to learn from the first. This is followed by an informed second trial, leading over time to an aggregated growth of knowledge and skills. Such feedback loops of learning-through-doing are very different from action that follows a predesigned plan like a blueprint.

The theory of emergence presents no omniscient godlike decider who tells the sands to form into dunes. No linear command and control process or bureaucracy determines outlays in accordance with goals and reports outcomes. Patterns emerge from procedures. Systems find their resulting reconfiguration because all parts depend on each other, and that dependence incorporates the feedback cycle. In social systems, the environment of culture, economics, and ecosystem cause local communities to adapt and react. An evolving adaptation is underway. If an action does not work better than it did yesterday, one can go back to yesterday to find a better answer for

tomorrow, but fundamentally, momentum keeps going forward. Simple responses grow complex solutions. The key to the process is iteration: progression does not seek to be ideal, just better than yesterday.

Such systems become more resilient the more their participants are involved in these constantly adapting units. Rather than being managed from outside, control arises from the processes inside each unit, which are nested inside each other. The basic idea is that each is a basic building block defined for its scale, but also a model for the next. In SEED-SCALE, these units of assembly are individual communities, which may include only a few individuals at the smallest level, but can also branch out through ever-expanding webs of connection to encompass an entire species riding a shared planet into a common future.

When such ideas are applied in the social sphere, people want predictability. Humans do not want to be randomly blown around like grains of sand, gradually shaped into an ordered dune by the whims of the wind. People have instinctively tried to shape such order since time immemorial. Rules fall into place to hold each other accountable—not formal laws, but the more basic (and fluid) cultural codes that condition not only what we do, but what we want and how we think. These are agreements sealed by handshakes, not contracts bound by law. Such informal ordering may be all that is available, as in frontier outposts or ungoverned-by-law slums, but because of the dynamics of emergence, this structuring order is enough. Such order self-assembles; it is not assembled by external forces. Through this process, disparate actions become social movements; those slums become settlements. In the context of what might be seen as a negative enabling environment in which forces are pulling structures apart, such order arises through a positive feedback loop that channels human energy into pattern and structure.

Such emergent change depends on how knowledge, technology, and resources come together. At times, the pace moves rapidly, other times slowly. In the current age, with its ever-accelerating march of knowledge, technology, and resource-consumption, the challenge before communities is how to adapt quickly enough to not become victimized or simply bypassed by the rapidity of global change.

SEED-SCALE gives a design to that feedback process. By giving a design (based on analytical evaluation of earlier experience) the probability rises that the acts of each day will fall into optimal order for tomorrow, lowering the tendency toward randomness. The structure of this feedback is guided by the four principles already mentioned, and operationalized by seven iteratively-performed tasks that will be discussed in Chapter 6: organize a coordinating committee, identify local successes, learn from related successes, gather evidence at the locale, put together a plan, implement that plan, make corrections according to the guiding four principles. In each case, the goal is not perfection, but rather simply performing each task as effectively as possible at

that time and place, recognizing that action can always be improved in the next round.

Order is produced by community members acting in collectives rather than as individuals. This internal ordering disperses control in favor of cooperation.<sup>15</sup> As communication increases, so does specialization and organization. The more this occurs, interactions that are unpredictable become legible as patterns, to which action that protects the interests of community members can respond. Where social entropy would have pushed the emerging order apart, such iterative performance of set tasks focuses energies so that a new threshold of stability can be achieved.<sup>16</sup> How to take such action through an iterated cycle of tasks will be described in subsequent chapters, but for the moment the operative point is this: small recurrent actions have the power to be far more transformative than major plans or initiatives, in part because they can change and respond to evolving circumstances, also partly because smaller actions have lower barriers to execution. In this book we are obviously advocating that such focusing of energy arise out of social empowerment, but it should be noted that a variety of forces could be (and have been) used to focus order, from the iron fist of totalitarianism to the “invisible hand” of the marketplace. Indeed, any instance of social organization could be understood via the model of a complex system self-assembling so that the growth continues.



**Figure 4.6.** These girls walking through the snow to literacy classes being held at the local mosque are able to create and attend these locally run classes only because of strong community support. (Photo credit: Katrina Aitken)

Communities, as defined throughout this book, are groups of people with something in common and the potential to act together. This means that communities are essentially bundles of human energy. If a community exists, then it has energy in its people that can be mobilized in the direction of their aspirations. It is important to realize that energy is not being “created.” Instead, it is always already present in the lives of people, scattering as they go their daily ways but always with the potential to be brought together and transformed. Indeed, it is precisely the extent to which that energy is already running along common channels that determines whether the group of people can be called a community. No community is so depleted that it utterly lacks internal energy.

Consider the parallel to a landslide: latent energy is poised like rocks resting on a hill. The hill appears stable, and may have been so for hundreds or even thousands of years. Then some act causes a single rock to shift, or a rivulet of water to pour into a new channel underground, and suddenly the entire hillside gives way. Some very small energy of activation catalyzes this latent energy just as one rock rolling can precipitate a landslide. (Social analogues abound: we know them as revolutions, in which the initial “spark” is a crucial part of the historical narrative—“the shot heard round the world.”) In such moments, continuing with the landslide parallel, the transformation wrought entails not only the mobilization of many rolling rocks, but also a transformation of latent energy into kinetic energy, with sound, smells, and heat. All this is in keeping with the First Law of Thermodynamics, which states that energy cannot be created or destroyed, but it *can* change from one form to another. With a landslide, no new energy is created; all that energy was already latent in the conglomeration of boulders, mud, trees, and roots that was the hillside. In a similar manner, those latent energies are already extant in every community, and can be brought forward through small catalytic actions.

Returning to the challenge of dissipating energies in Afghanistan, an approach grounded in complexity is the only option with a hope of transforming the present quagmire in accordance with the aspirations of the Afghan people. This is not a process of trying “to fix” the situation. Afghanistan is simply too complex for the internationals to try to fix it: thirty million people with ancient animosities, external governments on all sides jockeying for leverage, near-total breakdown of physical, financial, and educational structures, all coupled with the internationals’ disinclination to use the one strong structure that was in place, Islam. But, this complexity has within it the potential of readjusted relationships that can be used *by the people* for rebuilding.

The Afghan instance is helpful because it is so extreme. It shows how far the “we can fix your country (whether you like it or not)” mentality undergirds the actions of world leaders. The international community sends its sons and daughters to die and spends billions of their currencies to compound errors in an unremitting negative feedback loop, or more accurately, a positive feedback loop of

unremittingly negative results. The Afghan experience is an evidence base almost everyone in the world is familiar with that renders the reality of complexity comprehensible. To better understand the forces at work, let us turn in greater detail to concepts from physics. The extent to which principles from physics transfer to human energy is unclear, but there are helpful parallels. A substantial literature exists on the role of human energy in improving people's lives.<sup>17</sup>

## INSIGHTS FROM CLASSICAL PHYSICS

As emergence brings from physics relevant constructs with which to understand human energy, classical physics is also helpful. The first relevant feature is the concept of *conservation of energy*. Energy cannot be created or destroyed. Joule, Helmholtz, Kelvin, and others have shown that energy, when it transitions from one form to another, is not lost but transformed. It remains energy in the same quantity, when transition occurs from electricity to motion, heat, sound, or light.

Energy in humans is also transformed.<sup>18</sup> In the case of Afghanistan, the hope that came with freedom in 2001, and saw the country “standing on top of golden hours, human nature seeming born again” was real energy. Empowered expectations like that were not going to just disappear. That energy was inevitably going to find outlets. This constancy is crucial for understanding the dynamics of social change. A resource more powerful than arriving armies was already there. It could be engaged, or it could be ignored, and allowed to switch to self-survival, the planting of poppies, and roadside bombs. While the potential labor of the people was lost to the country as it turned to selfish ends, a more important energy was also lost, their aspirations: hope, anger, collective knowledge, a compound force that could have fed back into itself to build a nation or one that could turn outward aggressively on nations trying to help.

In his 1687 *Principia Mathematica*, Isaac Newton advanced *mass*, *momentum*, and *force* to define energy. In physics, mass is volume multiplied by density; in social dynamics, the social mass parallel would be the number of people relative to the density in which they cluster. Thus, mass in a city is greater than that of the same number of people in a rural setting thanks to the greater density of people in a city. As a consequence, as physical energy flows better through denser substance (metal versus air), social energy viewed according to densities explains why urban energies spread more quickly than rural. (An increasing concern, both in Afghanistan and worldwide, as millions yearly migrate into the cities—see the case in Chapter 6.) But the fundamental point in the Afghan context is that social mass was not mobilizing in a positive way as a result of international action. Instead, positive feedback was dispersing, undermining the cohesion required to form a functioning nation.<sup>19</sup>



Newton's First Law, concerning inertia, sheds light on how social mass changes direction. (In this respect, we might say that the insurgency's great achievement lay in transforming social mass, sowing the seeds of its resurgence as it dispersed.) With physical forces, momentum continues in the same direction until acted on by another force. Similarly, societies follow traditional ways until some force changes their direction. The separate tribes in Afghanistan with warring feudal histories were easy prey for the Soviet invasion, but when their scattered energies became coordinated, they toppled the Soviet force. When coordination stopped during the civil war, the scattered factions returned, then became focused again by the Taliban arriving from Pakistan. To again bring together the scattering of energies will be a challenge, because of the extent to which the aid-giving process has promoted individualistic behaviors.

However, the resurgent Taliban achieved collective energies using the force of religion to unite a people otherwise ethnically, geographically, and linguistically separated—a unification that they had not been able to achieve earlier despite their own zealotry. Earlier, their zeal had been characterized as Sunni, and thus created a barrier with the Shia Hazara. But now, in the second coming of the Taliban, they were able to craft a clearer Islamic identity in contrast to the perceived (and often genuine) anti-Islamic attitudes of the international community and are bringing Shias into their alliance. Religious zeal is one of humanity's most powerful energies of mobilization; it costs little and sustains itself with scant support (especially when mosque/mullah or church/priest infrastructures are in place). Billions of aid dollars could not create the desired forward momentum, while the energy of religion mobilized a people even though they well knew the oppressive excesses of the group using this force.

According to Newton's Second Law, the acceleration of an object is proportional to the force acting on it and inversely proportional to its mass. This explains why a small group of people accelerating their momentum (such as a few hardcore Taliban or a fast-moving Arunachal women's group) can redirect a larger social process. A few people moving strongly draw in followers, and the now-increased mass adds more changes, further redirecting momentum. As the process builds, the whole population turns. In other words, a slow-moving society can be viewed as rigid and unable to change, or it can be an opportunity if acceleration enters, gets ahead with a small force the larger group identifies with and shows new direction. This is what the defeated Taliban did: they moved quickly with the poppy seeds, positioning themselves to fulfill rising aspirations, a way-of-life improvement that was available to all. The influx of free wheat, free schools, free clinics, and free wells, did not create a pull because it confounded possible emergent energies with paperwork and restrictions. One resource was available to all; the other, even though free, became a scarce resource because only a few had the ability to put it to use.

Such understandings can be put together using a Newtonian force analysis. Social mass was dissipated by the internationals into individualistic behavior. Inertia was ceded to the one unifying force in the country, allowing an energized Taliban to accelerate out in front of the social mass with a new vision of how to unify this disaggregated context of human energies. Of course, more is involved in such transformations than acceleration of social mass. As noted, empowerment is a positive feedback loop of accelerating human energies. As the process moves forward, the nature of energy among people changes, becoming stimulated, amplified, and focused as a laser does with light.<sup>20</sup> Such activation happened with the poppy seeds. The seeds were tiny black things that suggested people could make money—but when connected to people’s energies in their natural environment, the seeds started producing empowerment along with the opium. Such growth toward rising aspirations did not happen with the paperwork that created barriers between the people and blocked the creation of a feedback loop. Managed differently, outside engagement through education could have led to people to reinforcing actions such as creating the women’s action groups mentioned earlier, or the mosque-based schools that will be described in Chapter 7. The mental model of development for the people (rather than development by the people) blocked the growing of people energies.

## CONSEQUENCES OF HUMAN ENERGY

The relationship between matter and energy famously asserted by Einstein is direct ( $E = MC^2$ ), and the formula indicates that huge amounts of energy can come from a small amount of matter. No suggestion is made here that this formula applies directly to social change, but the analogue is an important one: a major energy source can be tapped by utilizing relatively small amounts of our material selves. Human energies are magnificently expansive and varied. They are the substance of our happiness, health, and homes, in addition to being the intangible substance of our knowledge and our relationships. The value of these is vastly more than that of material and monetary commodities so frequently confused with happiness, health, and home. Moreover, energies can radiate out into the infrastructures of communities, and loop back to further enrich life.

Let us return to the Rostam and Saya Dara valleys and their remarkable growth of energy. How did that occur, and with virtually no money spent? The women’s groups reduced the mortality of children under five by nearly one-half, twice what the best national programs had been able to achieve. (Table 4.1 showed how the dynamics of education, mobility, and readiness assist one another to empower these communities.) The social mass of Afghan women came together, and that mass was combined with knowledge and supervision. It should be no surprise that mobilized and educated women working in groups

were able to double the impact of “best-practice” formal health services. Furthermore, if mobilization and education could halve disease death rates, might similar action do the same for death rates by bullets? After all, even the most ardent human enemy is more easily reasoned with than a microbe. Mobilized and coordinated people are fully capable of denying safe haven to terrorists. Once again, the mindset brought to the task is critical: is ending war really a confrontation between armies or is it mobilizing the energies of peace? If the later, peace then is the product of adaptations in complex systems.

Empowerment grows out of strengthening community bonds coupled with expanding knowledge. As bonds in physics are the forces holding physical objects together, and as more complex bonds occur, more complex atoms and molecules result, so the parallel extends to social bonds as the myriad forms of human connection give rise to social forms that are both more complex and more resilient. Effective interaction, both in complex interdependent economics but even more in complex interdependent social relations, is the dynamic that carries communities forward, putting collective interests ahead of the individual.<sup>21</sup>

Economist Gary Becker makes a helpful and related clarification about family investment, noting that when families move from investing in many children to fewer, then those fewer receive more education and health, and the societal result is development.<sup>22</sup> This investment grows a resource in society different from what was presumed by simple economic production. The distinction is that children are valued now not for labor but as building capital in all the human aspirations. Growing such bonds over time produces civilization, shown in the real wealth of societies (art, literature, values) that create social depth rather than pure, striving materialism.<sup>23</sup>

Empowerment can happen instantaneously when a group is under threat and people rapidly strengthen their bonds for protection. Usually, the process is grown through cycles of positive feedback that lead to ever-increasing acceleration, like a flywheel. In Bameng, initial action was a small push—Rima sitting on the floor in a bamboo house discussing a simple but important technique (the medical journal *The Lancet* said oral rehydration therapy “may be the most important medical discovery of the twentieth century”<sup>24</sup>). But the larger impact for the Bameng women was awareness that improving their families’ health was in their own hands. That *Eureka* of new awareness changed their inertia from being stalled to adding firewood-collecting and vegetables for sale, and learning how to read and write; and once underway, the cycles kept growing. Many development programs would have been pleased just to bring down child mortality. But what happened in Bameng was that momentum took off, and, more important, that transforming energies were internalized, leading to sustained action. It was both outward-radiating, in that one type of activity started another, and longitudinal, in that it was sustainable over time. This is profoundly different from the model of service delivery, where the process is driven by outsiders and change stops when the money stops. Today, in Bameng women and their husbands walk around in nice

clothes, know how to read and write, and have bank accounts, while vegetable gardens, bamboo orchards, and cardamom and ginger grow beside their homes. Meanwhile, they are turning to the next innovation.

This discussion of growing human energies to create larger impact has been illustrated with examples in Bameng as well as Rostam and Saya Dara valleys where seeds of women learning to take action grew to the scale-level impacts of their valleys, but much larger impact is really required. In Chapters 8 and 9 the process will be outlined of how localized demonstrations can grow to significant scale. However, it is useful to note here how the women's action groups of Rostam and Saya Dara did have significant impact. The projects themselves did not scale up, but their data did. Rostam and Saya Dara are distant from Kabul, and with the war under way, the two valleys saw few visitors. However, their statistics could come out, and what made a difference in this instance was that their statistics were not compromised because of the war. Most notably, from these distant valleys to influence larger policy a full population census was achieved—all 1,060 women in the population. Being a census there was no sampling concerns, the data truly reflected what had occurred. These two distant valleys became a national demonstration. Adhering to rigorous scientific methodology is difficult for community-based projects—but when it is achieved small community-based projects can become national trend-setters. Further, to get the empowerment dynamic mobilized, it is necessary participants believe the project is under their control, not that of scientists. It is impossible to overstate the need for data people can use—and trust. We repeatedly have made the error in our field work of not getting a baseline of evidence against which later progress can be compared. Having the Lot Quality Assurance Sampling (LQAS) baseline for this project was much better than the usual nothing, but the more rigorous pregnancy-history method allowed collection of truly accurate retrospective data.

The national health system, extending from the health minister to ten thousand health posts, had experienced a persistent gap in service delivery: the “last kilometer to the home” problem. Now, with the women's action groups, the national program had a new structure, proven with solid data, that covered that last kilometer, mobilizing women so they did what they could in inside-the-family health care and then accessed the health system for what they could not. Women's action groups offer a method to gather, train, support, and supervise women to do two-thirds of basic health care, then refer into the health system the one-third that cannot be done in the homes. The statistics from this demonstration showed that this approach doubled the prior best project effectiveness. In Afghanistan, awchirl in opinions and power struggles, this project offered scientific evidence of high quality. Because of it, international contractors joined with the government and advanced action to replicate the women's action groups. (In order to avoid the politicization of this becoming a women's-rights project, the name was

changed to “Family Health Action Groups.”) Regrettably, what was copied was the structure rather than the process. Communities were mandated to create the action groups rather than growing them from internal energies. Recognizing that this is less than ideal because it again misses the central insight that relationships, procedures, and process are what matters in complex adaptive systems rather than the entities themselves; it is still major progress.

Empowerment stimulates and accelerates energies already inside communities. It cannot be sparked by telling communities what to do, for then action will be driven by external resources and directives. Energy needs to grow from within the communities (energy-growing principles, tasks, and monitoring criteria can help systematize this process). Then, community momentum can engage services waiting outside. The diagnosis by Albert Einstein remains as true today as it did when he said it: “The world will not evolve past its current state of crisis by using the same thinking that created the crisis.” Each crisis contains energy that can be turned to create opportunity. To break free, thinking must break from old routines. Crises are occurring within complex systems that have, for varying reasons, gotten out of hand. Bringing in added control, trying to make them work by driving them with more technology or money, is “using the same thinking that created the crisis.” An approach is needed that readjusts the system. As a foundation for this process, the next chapter offers four principles.



**Figure 4.7.** This circle of women (from one of the rapidly expanding women’s action groups) is learning how to safely cut an umbilical cord to prevent tetanus. (Photo credit: Gladys T. McGarey)