

# The Unholy Trinity, Plus One

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## Preface

This paper was originally written for a "visioning session" of the Board of the Queen Lili'uokalani Trust in Honolulu, Hawaii, on February 19, 2008. It is the most complete written version of a talk that I have been giving to groups around Honolulu for a few years before and after that date, simply modifying the details of the presentation as aspects of the anticipated developments (that I designate "the unholy trinity, plus one") actually occurred in forms that helped some people understand the greater perils and promises yet to come. I have given versions of this talk to groups who know and care about Hawaii and who are concerned about its future—native Hawaiian organizations, church groups, social welfare organizations, locally-focused civic and environmental groups, chapters of Rotary Clubs, schools, retirement home, and other similar organizations—because of Hawaii's extreme dependence on the global economic system on the one hand and its exceptional vulnerability to environmental modifications on the other. But the argument here should resonate almost anywhere in the world, and I offer it here because of that.

## About futures and planning

When planning for or otherwise anticipating the futures, it is imperative that we do so using an alternative futures approach. We must not assume there is something "out there" called "the most likely future" that we can identify and plan for. The possibilities and challenges before us are far too complex and interrelated for that simplistic kind of planning any more. Nonetheless, most of us, when thinking about things to come, assume that whatever is worrying us (or pleasing us) now will continue. If times are good now, we expect the good times to continue. If times are bad now, we expect continued doom and gloom. That predisposition is probably biologically and psychologically hardwired into us from ancient times when "continuation of the past and present" was without a doubt our best assumption for the futures. But now we live in such a dynamic and uncertain environment that such an assumption can, quite literally, be deadly to us all.

Nonetheless, we cannot rule out the possibility that the trends and forces of the recent past that created Hawaii of February 19, 2008 might continue. It makes perfect sense that one of the alternative futures for Hawaii be a continuation of past trends. It might very well be that tourism will continue to grow; that the US military funding will continue to be a major part of our economy; that the US and Hawaiian population will continue to expand (but mainly through immigration and the initial high fertility of immigrants); that the ocean will rise and fall in the same ways it has for past

recorded history; that pure water will be abundant; that oil will be cheap and plentiful; and that in every important way, Hawaii will remain an integral part of an extremely successful global neoliberal capitalist political economy.

That might happen. And many of us believe it will be wonderful if it does—while others in our community are, or feel they are, marginalized and injured by the very factors others of us laud and yearn for.

I do not need to help you plan for a future of continued economic growth. You know how to do that very well, since you have done, and are currently doing so, very successfully. Of course there is a bit of economic uncertainty lying ahead, but nothing out of historical norms, you might feel. And you might be right. In fact, if that is THE future you decide to plan for, I urgently hope and pray you are right since your decisions will impact so many of us living here in Hawaii.

### Surfing Tsunamis

One of the metaphors that I have used for many years to describe the magnitude of challenging forces sweeping towards us from the futures, and our abilities to control and enjoy them, is "surfing the tsunamis of change". Many of you are surfers, and you know what that analogy implies--the forces coming towards us are strong and relentless. We cannot stop them or run away from them. We need to study the waves carefully before we act. We need to prepare ourselves physically and psychologically for them. But then we must plunge into the water, stroke out to the waves, choose the ones we want to ride, and experience the thrill of using the power of the waves to go where we want to go with pleasure and excitement.

I want to discuss some of the tsunamis that I believe you should be focusing on carefully, if you are not doing so already.

The sad thing is that these tsunamis have been on the horizon for a very long time. Futurists, such as myself, have been trying to alert people to them, here and elsewhere, for many years, with little success, I regret to say. In the meantime, not only have they roared closer and closer, thus getting bigger and bigger, and harder and harder to surf satisfactorily, but their intensity and danger has been exacerbated not only by our neglect, but also by policies we have purposely followed which have made them much worse than they should be.

There are three of these tsunamis I want to discuss briefly. I am certain you are aware of them, and perhaps are already taking measures to address them. But I find very few people have linked the three together. Indeed, most people seem to assume that solutions to each one of the tsunamis lie in the other two without realizing that all three tsunamis are perilously interconnected. That is why I call them the "Unholy Trinity." They are unified and yet separate: three in one and one in three, as God is said to be in orthodox Christianity.

Then I want to mention a fourth factor that is almost never considered in relation to the three forces which diminishes our ability to address them satisfactorily. It is because of your role as a private trust of enormous influence in Hawaii that I jumped at the chance to come and talk with you. If you can help mobilize the leading economic, political and cultural decision makers in Hawaii to make the hard choices that must

be made to surf these tsunamis, then I have reason to be optimistic about the futures of Hawaii. If you choose not to assume leadership in this area, then I am left even more concerned about Hawaii's future than I am now. And I am concerned. I believe I know what can and should be done to enable a bright and meaningful future for Hawaii—I have been advocating it for decades—but so far, matters have only gotten worse, and not better, by what we have done and not done over those decades.

### **1. The end of cheap and abundant oil**

One part of the unholy trinity is the end of cheap and abundant oil. Oil is a finite energy (and materials) source. There is a fixed amount of it in the ground. At some point, humanity will have consumed one half of it, meaning that the remaining half will become more and more expensive and scarce until it either literally runs out, or becomes too expensive and difficult to recover. The time when we will have used up one half of the resource is often called "peak oil". Many people have known and said that "peak oil" would one day come, and that we should begin preparing for it. That has been part of a song I have sung here for forty years—from an address I gave to a joint session of the Hawaii State Legislature in January 1970, to work I did with Senate President David McClung, to association with Pat Takahashi of the Hawaii Natural Energy Institute, to participation in several ECOPUSH conferences convened by Dean Shupe of the UHM College of Engineering, to publicly chiding Governor Cayetano for the horrible symbolism of choosing a Lincoln SUV as his official state vehicle, and on to the present.

Hawaii is more dependent on oil for everything it does than is any other state of the union, or perhaps any other community in the world. And yet, no place on Earth is as fragile and as easy to ignore as is Hawaii. Imagine you are a supplier of increasingly scarce and expensive oil. Where would you prefer to sell your oil, if you had to choose among buyers? India and China or Hawaii? Will Hawaii be able to compete as oil gets more rare and expensive?

Our current economy is absolutely dependent on cheap and abundant oil. We basically eat oil. Our economy operates only because planes fly and boats sail on cheap oil, bringing in tourists, food, automobiles, clothes—indeed almost everything we consume—and hauling away tourists, garbage, and ourselves as we travel to the mainland, Asia, and elsewhere.

Without affordable and plentiful oil, we die.

And yet the era of cheap and abundant oil is over. There certainly will be ups and downs of price and supply—and a prolonged global recession or depression, would of course prolong the supply for a while by drastically reducing demand—but the overall trajectory is for the price to go up and up as the supply goes down and down.

*But aren't there alternative energy sources that can save us?*

I certainly assumed so forty years ago. Indeed, I was a total techno-optimist then. I assumed that rational humans, having been made aware of the finiteness and imminent decline of this most precious of all industrial resources, would immediately do what was necessary to see that new and equivalent energy sources would come online well before oil was exhausted.

This did not happen. Not here, not anywhere in the US. Especially here in Hawaii, we have many *potential* alternatives to oil, but we have absolutely nothing I am aware of that can come online soon enough, cheaply enough, and abundantly enough to prevent at best a "gap" between the time oil effectively runs out and when new sources come online.

*How far into the future is that gap?*

No one can say for sure, but it is close enough that we here in Hawaii ought to be hysterical with concern.

There are technological solutions. We read about them every day. But I can assure you without a shadow of a doubt they do not lie in either conventional biofuels or nuclear, and they certainly don't lie in coal—although you will see—have already seen—many people falsely claiming those are our solutions. There is no doubt that not only are biofuels substantially polluting but they also divert land needed here for food to the production of fuel. We must not let that happen. We need to keep as much land available for food production as possible. On the other hand, biofuel from algae in the ocean may offer some hope.

There is also the issue of what is called "net energy". It takes energy to produce energy, and so far most alternative energy systems consume far more energy than they produce. This is the question you must always ask: what is the overall energy budget of each energy source? If it is not net energy producing (or if it will not soon be net energy producing), then don't count on it.

Those of us who have looked at the matter also believe that the uranium needed for nuclear fission is as scarce and increasingly expensive as oil. Not only is nuclear fission an irresponsible fuel—future generations for thousands of years must manage the highly toxic waste the process generates—but also it is not even sustainable much longer than is oil itself.

And coal is simply vastly too polluting to allow any more burning of coal at all anywhere.

*So where does that leave us here in Hawaii?*

First and foremost, there is conservation. That should be our immediate highest priority—doing everything we can to cut down our use of energy in all ways.

Then we need to do the research and generate the technologies that rely on wind, sun, the ocean (both wave and OTEC), and geothermal. It is criminal that we have neglected those sources in the past, and it is good that we are renewing interest in them now. But I emphasize the importance of conservation not only because we won't have sufficient alternative energy systems in place for a long time but also because we might be better off in some ways by *not* having cheap and abundant energy.

Do you know that Cubans are among the healthiest people on the planet? It is so because, among other things, the embargoes placed on them by the United States make it very difficult for them to import oil for transportation and many other activities. So Cubans have to walk, bicycle, and use manual labor (raking instead of using a leafblower, for example) whereas we here in Hawaii use oil and get fat and sick. An energy-scarce society might be a healthier society, it turns out.

## 2. Multiple environmental challenges

I believe I can say with some confidence that increasingly over the years ahead more and more time, attention, energy, and money will be devoted to addressing conditions caused by climate change, sea level rise, freshwater contamination, soil erosion and contamination, new and renewed diseases, and the environmental refugees coming to Hawaii from the disappearing Pacific island communities, whereas less and less time, attention, energy, and money will be devoted to manufacturing, buying, and consuming automobiles, clothing, electronic products, and especially leisure activities such as tourism and sports. Our—America's, and the world's, as well as Hawaii's—brief and exceptional experience of being a mass purchaser of increasing, and increasingly cheap, high quality consumer goods may rapidly be coming to an end.

It was an exceptional period of history, which began in the late 19<sup>th</sup> century, but surged into global dominance during the second half of the 20<sup>th</sup> century. For most of human history, greed and waste was bad, sufficiency and conservation was good; conspicuous consumption was bad, making do, repairing and treasuring old things and using them forever was good. Most importantly, for most people over past millennia, "work" occupied only a small portion of their lives, leaving ample time to play and pray with families and friends. It is highly possible that these old times will return in some ways—though addressing the new and powerful challenges of environmental damage will require far more attention than ever before.

Once upon a time, nature could take care of herself. Now we must learn how to take care of a very sick and battered Mother Nature. Also, once upon a time, nature was generally predictable enough—with some notable exceptions—that we could plan according to nature's rhythms. We have destroyed most of nature's old rhythms, and no one understands what new ones, if any, will emerge.

Of course, all of this was widely discussed decades ago. For a while, in the early 70s, Hawaii made impressive steps towards trying to live sustainably but well, by living *with* nature instead of *against* her. But we gave that all up in the late 70s, and especially from the 1980s onward when we have raped nature over and over again without the slightest pangs of conscience.

Now the future may be getting back at us. Years of abuse may strike back with increasing fury.

We have known this all along. Nothing annoys me more than Al Gore and all his Inconvenient Truth nonsense, not because he is wrong, but because he knew that truth very well when he was vice president and running for president, but chose not to use his office and prestige then to arouse us to action. Now it may be too late. That is the more inconvenient truth—or at least grave possibility—we need to deal with. While we once had a chance to prevent these challenges, we chose not to do so. Now our only option is to learn how to live with them.

So, to tie the first person of the unholy trinity to the second, we are running out of cheap and abundant energy just when we need massive amounts of energy in order to address these new and surging environmental challenges. And at the same time, we have to be absolutely sure that our new energy sources themselves do not make our environmental problems worse. At best they should be neutral solutions, but preferably they should be ameliorative—offering solutions to the environmental challenges.

### 3. Global economic and fiscal collapse

And of course, to do all this we need money—lots and lots of money to pour into new energy research and development, and to spend to build the dykes, rebuild along the ever-shifting shore lines, retrofit buildings, decontaminate the soil, unpollute the water and air, build new energy-saving habitats that themselves achieve net energy savings—and a myriad other things.

Do we have such money available?

My answer is yes and no.

"Yes", in the short term we have plenty of money if we will either tax or otherwise pry the money from the coffers of the super-rich who possess it.

But "No", in the long run because "wealth" in our global--and local--economy rests on a gigantic Ponzi scheme whose roots go back to the late 1960s and early 70s when our economy was first about to crash because production was outstripping the ability of most people to buy the abundant products being produced.

"What to do? What to do?" we fretted.

The solution was to create new debt instruments, especially the consumer credit card. These enabled the economy to continue to seem to grow by allowing consumers to go into debt to obtain the new products. That worked until the end of the 1970s when the economy was about to crash again under the twin burdens of stagflation, whereupon Ronald Reagan and his gang re-ignited a Cold War that was threatening to end by détente and peaceful cooperation. He re-ignited the Cold War so that America would grotesquely increase military production, while luring unemployable young men and women into the military where they could be all they could be since they couldn't find a real job. As a consequence, America entered into a prolonged and continuing era of military socialism where anything can be done, via deficit spending, as long as it is linked to "national security", though little can be done otherwise.

So America, and Americans, went even deeper into debt, pushing repayments farther and farther into the future until the savings and loan scandals of the 1980s ballooned and burst, followed by the dotcom bubble inflating and bursting in the 1990s, until, with the help of interest-rate swaps, credit-default swaps, quant-funds, hedge-funds, derivatives, credit-derivatives, auction-rate securities, and collateralized debt obligations, a new bubble inflated and has just recently burst. The press keeps calling it the "subprime mortgage" scandal, but that is, as usual, blaming the poor and poorly uninformed for damage caused by the financial system itself.

What will the next bubble be based on and when will it begin? Eric Janszen predicts it will be based on investments in alternative energy and infrastructure. Indeed, he says that it has already begun, and will balloon over the next several years before collapsing in a sordid heap shortly thereafter.

I am not so sure. I have been expecting the global Ponzi scheme to collapse repeatedly in the past since it is ultimately unsustainable, but I have been wrong because the financial wizards have always successfully invented some new debt instrument to postpone the inevitable by pushing the reckoning farther and farther into the future.

I fear that the end is nigh. It is nigh because of the other two persons of the unholy trinity I have already discussed—the end of oil and environmental challenges. As is typical of any discussion of the economy, these two issues are not mentioned at all by Jenzsen. He just assumes we will have the energy to find new energy so that the new energy systems will be net-energy producing. I see no evidence that they will be. He also does not assume, as I do, that we will require so much talent and attention being paid to addressing long-neglected environmental problems that we won't be able to inflate the next bubble sufficiently before it collapses.

But I have been wrong before, and I may be wrong again. But if not now, then at what time in the future will the day of reckoning finally be? How much longer can we push it into the future, foreclosing the options of our children and of billions of unborn future generations? Just how massively irresponsible can we humans be, and for how long?

So those are the persons of my unholy trinity—the end of cheap and abundant energy, environmental catastrophes, and global economic/financial collapse.

So what is the "plus one" in my title?

#### **4. Plus one**

It is government.

Or rather, the lack of government—the lack of any kind of formal, communal system that can help us solve any of these three challenges.

Americans have had a very strange love/hate relationship with government since our earliest times. On the one hand, our Founding Fathers, and most of us now, are Hobbesians. We believe that without a strong government forcing us to obey, we would be relegated once again to what the famous English philosopher Thomas Hobbes called the State of Nature where life was solitary, poor, nasty, brutish and short—A War of All Against All, he called it.

Our founding fathers believed this. As they put it, what is government but a clear indication that all men are evil? If men were angels, government would not be necessary, but since all men are evil and self-centered, strong government is necessary to make us cooperate against our will, but for the collective betterment of us all. Evil balances evil and produces good.

At the same time, from the very beginning, the fundamental American philosophy has also been "That government is best which governs least." We want to be free to do what we want to do, without anybody holding us back. And yet since that is what we all want, we need something to check our mutually-destructively competitive predispositions. So we don't want government to do much, but what it does do, it should do massively and with killing force backing it up. This has always been the basic ideology of most Americans. The only disagreement among us has been over what things government should control and what things we should be left to do freely.

For the period immediately before and for thirty years after the Second World War, most Americans believed government had an obligation to help the helpless, to level all playing fields, and to see that no one got too rich or became too poor. But since the 1980s—from Ronald Reagan on through George W. Bush—a very different

philosophy has prevailed which has declared all government to be a positive evil. We have become almost Libertarians in our ideology, believing everything should be left up to individual initiative through the free market. It has not mattered whether a Republican or a Democrat like Clinton was president, or a Democrat, or a Republican like Lingle was governor, most of us clamored for no taxes and for leaving everything up to the private sector or to individual self-reliance.

In the process—and at the national level significantly more than at the state level here in Hawaii—we have done everything possible to downsize and cripple government, to make it impossible for the public, through its instruments of formal governance, to act on behalf of the commonweal. If you are sick, or poor, or uneducated, or anything else, that is your personal responsibility, in cooperation with whatever guidance and help you might get from your family, friends, or church. Your problems are of no concern to rest of us, so the government has no obligation at all to help you.

And so everything has been done over the past twenty-five years to see that government in fact cannot help you. Helping personnel and offices have been cut, their jobs outsourced (if performed at all) to private and often foreign service providers, and taxes lowered to such an extent that there is no money available for the government to help even if it wanted to somehow.

Don't get me wrong here! Government can certainly help certain people when it wants to. While it may not help me when I do something stupid and perhaps even borderline felonious, it is eager to bail out the folks who brought us the savings and loan, dotcom, and subprime disasters. Business is very happy to socialize its losses as long as it can privatize its gains. Moreover, not all aspects of governance have been cut or downsized. Everything having to do with police enforcement and imprisonment internally and with military intervention and the projection of overwhelming killing power externally has hugely grown in terms of internal and external intrusion, and at extraordinary cost. But, because taxes are so low, the cost is not borne by the members of the current generation who are benefiting (if anyone is) from these policies. Instead, the government has engaged in massive borrowing from inside but especially from outside the borders of the United States, leading to an enormous and exponentially growing imbalance of trade payments and a gigantic and rapidly-swelling national debt extending farther and farther into the future, with occasional mythic instances of budgetary surplus projected to keep the con game going.

Again, this is not a Republican or a Democratic ploy. Although great to-do is sometimes made of the fact that the last days of Clinton's presidency produced a budgetary surplus that Bush instantly turned into a ballooning deficit, it should not be forgotten that Clinton's surplus was one billion dollars against a national debt at the time of six trillion dollars. An utter drop in the ocean, and achieved by cutting vital internal services, especially in infrastructural repair and scientific research and development, to almost nothing.

My point here is that a combination of carefully-orchestrated factors have created a state (that is to say, a government) that is so weakened by ideology, down-sizing, and debt that it cannot act on behalf of the common good if and when the public expects it to do so. The first pathetically-striking example of that inability was the state's (both national and local governments') ineffectual inaction in response to



Hurricane Katrina and the utter failure of the private sector to respond on behalf of poor people in New Orleans, In addition we learn day after day that America's roads are increasingly riven with potholes, our bridges are falling, our sewers spewing toxic wastes into our water and fields, our dams collapsing, our water-tables falling and becoming contaminated, our rivers, lakes and seas rising, our borders porous sieves though which aliens freely flow, our ports unprotected from bombs and bugs, our schools failing and our children ignorant and non-competitive—and yet our governments can do nothing about it, since they are income-starved, personnel-depleted, and debt-bound. The private sector also seems unwilling to serve those most in need of service, and as more from the middle class move either up to the rich or down to the poor, the solid middle class basis of our American consensual democracy evaporating.

The strangest thing in all of this is that even though our state—that is to say governments—can do almost nothing to help our citizens, we are still expected to be loyal to the *symbols* of our nation—the flag, the pledge of allegiance, the national anthem, and—strangest of all (because it is such an utterly archaic, undemocratic, and dangerous instrument)—our federal constitution. One of my primary current research questions is, "how much longer will Americans be loyal to a nation whose state does nothing for them?" At what point will Americans say, "Enough! We won't be loyal citizens unless the state can help us collectively live the lives we wish to live"?

So far, that moment has not been reached, but what will be the tipping point—the Katrina like, bridge-falling, dam-bursting, water-poisoned by toxic-waste catastrophe that will cause otherwise loyal Americans and/or Hawaiians to rise up and say, NO!

Well, maybe nothing.

Our reactions to 9/11 made it absolutely clear that America is not the land of the free and the home of the brave, but a land of people eager to give up their "eternal" freedoms at the sight of their own shadow.

And with the massive powers for surveillance and control now eagerly granted to military and paramilitary personnel—with more coming soon as electronic chips become implanted in everything—our cars, clothing, roads, walls, and bodies—which monitor our health, location, actions and intentions—all for our own good of course—in the coming "Ubiquitous Society", it may be that no effective peaceful protest will ever be launched by the American people on behalf of themselves and future generations locally and worldwide.

Since I delivered these words, "rock solid" banks and other hoary financial institutions have failed, the stock market collapsed, and trillions have been pledged by even "conservative" Republican government officials to "bail out" failed and failing corporations. Even the election of Barack Hussein Obama as president of the United States—an event surely to be celebrated for many reasons—offers absolutely no hope of effective and responsible action. So far he and his supporters seem content to solve current problems by passing on their payment to future generations. All current solutions are intended to convince Americans to borrow more and go more deeply into debt, rather than to imagine and invent a new and viable political economy, which is the only responsible response.

## Conclusions

So that is my urgent message to you as you think about the future actions of the Queen Liliuokalani Trust. The three tsunamis of the unholy trinity are racing towards us while the surfboards of governance that we should expect to use to ride them lie rotting in the racks.

Now it may surprise you to learn that I believe we must try to put a positive interpretation on the coming unholy trinity plus one; that we should indeed surf these tsunamis for fun and excitement. My message to you, and the message I hope you will share with others, is that Hawaii may have a chance to recapture a way of life that many of its citizens say they prefer, and regret they have lost. We may soon find that we will have to become much more self-reliant and locally independent than we have been for a long time, and that life can be very good and meaningful as a consequence.

Beaches will be open, surfing spots—and the roads to and from them—uncrowded, mass tourism no longer our primary industry, mom and pop stores will sell locally-made and produced food and goods, neighbors will get to know one another again, and we will no longer need to lock our doors. Best of all, the most life-enhancing of traditional Hawaiian values and ways of life might come to be the norm for all of us here.

In short, far from being a catastrophe, the end of oil and the collapse of the global capitalist system might very well be a great blessing, not only to Mother Earth, but to all of us. Of course, dealing with global warming, climate change, sea level rise and all the rest remain, but at least they will be within a local environment focusing on communal help and local self-sufficiency. I know this is the future many—probably most—of our citizens say they want. They have told me so repeatedly. It is the alternative future that almost everyone picks over the other options whenever it is suggested to them.

However, if we do not put these developments forward as a desirable future for all—as something to look forward to and to move towards positively—then I truly fear for the worse. As the planes and ships stop coming, as food becomes scarce, as the oceans rise and all the rest, the very worst instincts of individual protection and violence might take over. We might indeed revert to the Hobbesian world of a War of All Against All. This is the future we most need to plan against. It is not inevitable at all. We have the choice.

Only planning for continued growth—for example, only educating our children to work in a global high tech future—is a mistake. Certainly we need to help our children live and thrive in such a world for as long as that world exists. But we also need to educate all our children to be able to live thrive in a very different, more local and communal society. Some of our schools do that now, but most do not—certainly not the University of Hawaii at Manoa where I teach. In short we need to plan and prepare for alternative futures, and not only for one, especially the tattered future of continued economic growth.

This looks like a job for which you were created. Never before have we needed the Trust as much as we need it now to work on its own, and with the other trusts in this state, and with businesses groups, labor unions, churches, civic clubs, credit

unions, community centers, and, yes, Hawaii state and local government, to embrace the unholy trinity as a positive enabling force for our common good.

I challenge you to take up this task and help move Hawaii towards the brighter future we all want and can achieve.

Thank you.

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### **Regarding Cuba**

Franco, Manuel, Pedro Ordunez, Benjamin Caballero, Jose A. Tapia Granados, Mariana Lago, Jose Luis Bernal, Eliseo Guallar, & Richard S. Cooper. (2007, September 19). Impact of energy intake, physical activity, and population-wide weight loss on cardiovascular disease and diabetes mortality in Cuba, 1980-2005. *American Journal of Epidemiology*, 166(12), 1374-1380.

Cuba's economic crisis of 1989–2000 resulted in reduced energy intake, increased physical activity, and sustained population-wide weight loss. The authors evaluated the possible association of these factors with mortality trends. Data on per capita daily energy intake, physical activity, weight loss, and smoking were systematically retrieved from national and local surveys. National vital statistics from 1980–2005 were used to assess trends in mortality from diabetes, coronary heart disease, stroke, cancer, and all causes. The crisis reduced per capita daily energy intake from 2,899 calories to 1,863 calories. During the crisis period, the proportion of physically active adults increased from 30% to 67%, and a 1.5-unit shift in the body mass index distribution was observed, along with a change in the distribution of body mass index categories. The prevalence of obesity declined from 14% to 7%, the prevalence of overweight increased 1%, and the prevalence of normal weight increased 4%. During 1997–2002, there were declines in deaths attributed to diabetes (51%), coronary heart disease (35%), stroke (20%), and all causes (18%). An outbreak of neuropathy and a modest increase in the all-cause death rate among the elderly were also observed. These results suggest that population-wide measures designed to reduce energy stores, without affecting nutritional sufficiency, may lead to declines in diabetes and cardiovascular disease prevalence and mortality.

