



# Los Alamos Study Group

Nuclear Disarmament • Environmental Protection • Social Justice • Economic Sustainability

## DOES LOS ALAMOS NATIONAL LAB HELP OR HURT THE NEW MEXICO ECONOMY?

WORKING PAPER, JULY 2006, GREG MELLO

Many people assume Los Alamos National Laboratory (LANL) provides economic benefits to the region. Well, does it? And if so, to whom?

It stands to reason that every large facility that spends a lot of money will have at least some economic benefits – it will provide jobs, for starters. There will also be some downsides in every case – perhaps housing costs will be bid up, or there may be some pollution. There will likely be some strains on local government services, so taxes may rise.

There’s always some kind of tradeoff between costs and benefits, and these never seem to fall equally on everybody. We need to look at some of these tradeoffs to understand why the wider benefits of LANL for northern New Mexico, and for the state as a whole, are so elusive.

In addition to these direct (or fairly direct) economic consequences, every big facility like LANL will also have *social consequences* as well as *political and cultural consequences*. Important *indirect* economic consequences accrue to states and communities in conjunction with, and are caused by, these political and social changes. They’re interrelated. Economists are often impatient with political and social

phenomena because they are impossible to quantify, and more so because they are politically dangerous to discuss. I suppose almost everybody knows that political and social phenomena are absolutely central in determining a facility’s economic consequences, because corporate management and political practice in the real world include massive attention and investment in these

phenomena.[1] Keeping alert to LANL’s political, social, and cultural impacts will also give us clues as to why its wider economic benefits are elusive.

No one can objectively say whether our state’s involvement with nuclear weapons, which we might say has “radiated” from Los Alamos since 1943, has helped or hurt New Mexico. We can’t compare one history, which happened, with some other one which did not. On the other hand, neither should we fall into the trap of saying that just because “Facility X” provides jobs, its economic impact is positive. All operating facilities of any kind whatsoever provide “jobs,” and

the question, *jobs for whom?* It’s also quite possible that Facility X, which by definition provides jobs, could drive away other jobs, perhaps many more than it provides. It’s also possible that immigrants from other states could take most Facility X jobs. So even while adding new jobs, it’s quite possible Facility X could increase the number and worsen the plight of the poor in the area, or lead the region toward economic decline even while adding “jobs.” Other reasons, discussed below, may also occur to you why this could be the case.

For these reasons and many, many more, regional economists know that merely “providing jobs,” while on its face a good thing, isn’t an adequate measure of a facility’s net economic benefit. Sheer economic growth, which is often concentrated in a relatively few hands, is even less reliable than “jobs” as a measure of broad economic benefit. Development economists often prefer to focus not on “jobs” or even “total income” as goals but rather more on the human goals of economic development: improved health and educational outcomes, decreased poverty, and other objective quality of life indices. It is primarily against such broader and human-oriented development goals that LANL’s benefit, or lack thereof, must ultimately be measured.

We should recognize this or any choice of development goals as a political decision. It is a decision regarding what and who matters most. To pick two extremes, is our goal to maximize aggregate wealth, with little regard for how concentrated it is? Or just the opposite: to decrease poverty and make sure no one is left behind?

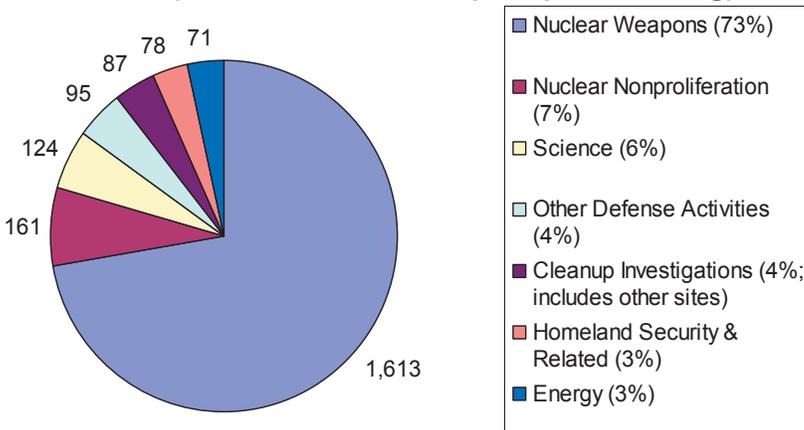
Above all, when evaluating the economic consequences of any facility like LANL, we have to ask ourselves about *the net benefits relative to what other investments*

Dollars alone do not tell the tale. LANL has social, cultural and political impacts which are absolutely central in determining its economic benefit – or lack thereof.

social phenomena are absolutely central in determining a facility’s economic consequences, because corporate management and political practice in the real world include massive attention and investment in these

Providing “jobs” isn’t an adequate measure of a facility’s net economic benefit.

**Los Alamos National Laboratory and Site Office  
FY 2004 Funding in Millions (All Sources):  
\$2,229 M (includes \$200 M unspent prior funding)**



LANL budgets are tricky; the LANL 2004 budget is shown here because our information was relatively complete in that year. The 2006 LANL budget is comparable.

two jobs are always more than one. Many a town has ridden that hobby-horse into economic oblivion. What’s more, “providing jobs” obscures more than reveals. Crucial information omitted includes the answer to

we might make. If no alternatives are possible, why do the analysis at all? Too many New Mexico political leaders gave up long ago and now content themselves with fiddling around the margins of social failure.

In New Mexico's case, we begin with the certain knowledge that something is now

terribly wrong with our economy, our political life, and our society. They are not what they could be and not what they should be. Whatever you may think about "the good old days," which usually weren't, our economic standing relative to

other states has fallen – and it has fallen at the same time as New Mexico's nuclear institutions have blossomed. Is this just a coincidence?

Answers to this question basically fall between two poles: yes, and no. "Maybe," "sort of," and "both" are also possibilities. It's clear, though, that the importance of nuclear weapons in the state's economic and political life since World War II make Los Alamos, Sandia, Kirtland Air Force Base, and WIPP difficult to assign to economic and political oblivion – to say they don't matter. Like the famous elephant in the living room, they're too big, and too big in many ways, to ignore.

If on top of the forenamed nuclear facilities we also consider the impacts of other military facilities like White Sands Missile Range, Cannon and Holloman air force bases, and the now-closed Fort Wingate (near Gallup) and Walker Air Force Base (in Roswell), the post-World War II military influence on New Mexico's total development – economic, political, and cultural – is undeniable. Either it's been good for us, or not, but it's not irrelevant. We've been shackled up with the military, especially the nuclear part of it, for a long time now.

I find it difficult to see how nuclear weapons could have been a big contributor to our economy for decades – something I hear every week – without also being a big contributor to the resulting economic outcome over those same decades, i.e. very high poverty and income disparity relative to other states, and so on.

We can't change our past, but we can understand it better. As we do so, our story, our history, changes too, and we change in it. New doors can open. Like it or not, nuclear weapons have become a big part of our state's story. Our relationship to them and to the institutions that foster and promote them

will have a lot to say about New Mexico's future.

And not just our own future. The morning after Hiroshima, New Mexico found itself thrown into the very center of history, a position it has never entirely left, thanks to the nuclear facilities it harbors. What happens from here on out will affect not just our own state's economy and society, but everybody's. This is especially true given LANL's new role as the place where, after a 17-year hiatus, the production of plutonium warhead cores ("pits") is slated to re-start.

### The myth of LANL as a regional economic engine

Beyond direct payments to its employees and contractors, which comprise only a small fraction of the region's population, LANL's broader economic benefits are "missing in action."

Look around. LANL has spent \$64 billion (B) over six decades.[2] If LANL were a force for economic development, we should see lab-related economic

development in the surrounding counties. There has been plenty of money and plenty of time. Where's the LANL-related development outside the town of Los Alamos itself?

Between 1995 and 2005, LANL spending rose dramatically to more than three times its average Cold War spending, in constant dollars. If LANL were a nucleus of high-tech economic development as often claimed, shouldn't we see private research and development (R&D) investment coming into the LANL region and the state? We know that in one recent period (from 1999 to 2002) New Mexico had a greater decline in venture capital investments than any other state.[3]

New Mexico's political and economic leaders frequently speak of the state as if it were a "high-technology" state. New Mexico, with \$4.98 B in total R&D funding in 2003, had the highest ratio of R&D spending to gross state product of any state that year. [4] New Mexico, in this sense, is a "high-

tech state."

Fully 86% of New Mexico R&D was of federal origin that year, and of that, most was military in nature.

What does it get us? We hear time and time again that the labs can be the centerpiece of a vibrant high-tech economy. Building these new businesses takes capital, and one indicator of high-tech capitalization, and hence growth in new businesses, is the amount of venture capital being attracted.

When it comes to attracting venture capital New Mexico does poorly. According to data compiled by the National Science Foundation (NSF) for 2003, the most recent year available, New Mexico attracted just \$6.63 M in venture capital that year. The state's R&D sector was 45<sup>th</sup> among states in its overall efficiency in attracting venture capital dollars, attracting only \$1.30 in venture capital per \$1,000 in R&D investment. This is only 2% as efficient as all U.S. R&D taken together and less than 1% as efficient as Massachusetts R&D, which led the states in efficiency of attracting venture capital with R&D investment, bringing in a total of \$2.8 B that year.

So at least in 2003, very few technologies were moving out of the New Mexico laboratories and into the marketplace – or if they did, they weren't doing so in New Mexico. And why should they, with our state's poor educational performance and other social ills?

As a fraction of our total state's economic activity, venture capital investments in New Mexico in 2003 were a paltry 7% of the national average, suggesting that New Mexico may be falling even further behind as a high-tech economy.

Another perspective on just how "high-tech" New Mexico is can be gleaned by looking at our "high-tech" employment. According to the NSF, in 2002 about 34,228 (6.2%) of all New Mexico employees were employed in "high-technology establishments," giving us a rank of 39<sup>th</sup> among the states, not all that great. If the employees of our two nuclear laboratories are tentatively excluded, however, on the thesis that their work doesn't contribute to the state's economy but rather mostly stays

Too many New Mexico political leaders gave up long ago and now content themselves with fiddling around the margins of social failure.

Beyond direct payments to its employees and contractors, a small fraction of the population, LANL's economic benefits are "missing in action."

From 1999 to 2002 New Mexico had a greater decline in venture capital investments than any other state. In 2003 the state's R&D sector was 45<sup>th</sup> among states in its efficiency in attracting venture capital – only 2% as efficient as the U.S. as a whole.

If the employees of our two nuclear laboratories are excluded (on the thesis that their work stays "behind the fence"), New Mexico is near the bottom of U.S. states in high-tech employment. New Mexico is a "low-tech," not a "high-tech," state.

“behind the fence,” New Mexico falls to near the very bottom of all U.S. states in high-tech employment.

New Mexico is a “low-tech,” not a “high-tech,” state.

The common myth ignores all this and more, saying LANL’s economic benefits are real but *hidden*.

LANL spends a lot of money – right now, about \$2.2 billion per year.[5] A lot of people work there – right now, about 12,000 people including subcontractors.[6] These employees and subcontractors spend some fraction of their salaries in the region. In addition, LANL buys some, though not very many, tangible goods in New Mexico.[7] Since, it is thought, any and all spending is good for “the economy,” LANL must be good for “the economy.” (We shall see in moment why it is necessary to place this phrase in quotation marks.)

The myth goes on to say that the economic stimulus provided by each LANL dollar is mightily magnified by circulation in “the regional economy” before its flight in pursuit of goods and services elsewhere. This necessarily assumes the dollars are spent here in the first place, and while some are, many aren’t. Many are sent away immediately to service nationally-held home mortgages and insurance policies, to web retailers, to out-of-state colleges, and spent on vacations, etc. Northern New Mexico is anything but a “full-service economy.” The income fraction spent locally is likely to be less for higher-income households.[8] Much specialized procurement leaves the state, as do pension fund contributions and most profits.

For dollars which are spent locally, the economic stimulus provided to the New Mexico economy is indeed magnified to some extent by one or more subsequent transactions. Both the *scale* and *nature* of this magnification need close scrutiny, however – more than we can provide in this article. For example, the dramatically increasing share of retail trade held by lean-and-mean big box stores like Wal-Mart almost certainly takes away dollars faster than in the past, while

Quaint concepts like a regional “economic multiplier” for LANL spending involve more fiction than fact and are best left in the past. They were never worth much in first place. at the same time creating poor jobs inadequate to lift those who hold them out of poverty. Simple concepts like an “economic multiplier”

which would attempt to use a single number to describe the magnification of LANL’s spending by subsequent regional transactions

involve more fiction than fact and are best left in the past. They never were worth much in first place.

LANL is one of eight major foci of federal military spending in New Mexico. The same myth says that Sandia National Laboratory (SNL), the National Nuclear Security Administration’s (NNSA’s)

National Service Center in Albuquerque, WIPP, and our state’s four military bases, are also good for the economy, since...why was that again? Because they all spend money – that’s it.

Something more must be going on, however, because it isn’t working. Just sticking to economic measures, the Corporation for Enterprise Development (CFED), using a composite of 68 economic metrics, recently gave New Mexico an “F” in economic performance, a “D” in business vitality, and a “D” in development capacity.[9] New Mexico is almost the poorest state in the union. It is also almost the least healthy state, the least educated state, and the most violent state. It is one of the worst states in which to raise a child, and our rank in this regard is dropping.[10] Its social health has been rated the very worst of all states twice running by Fordham University.[11] It is not getting better. If anything it is getting worse.

Enterprise Development (CFED), using a composite of 68 economic metrics, recently gave New Mexico an “F” in economic performance, a “D” in business vitality, and a “D” in development capacity.[9] New Mexico is almost the poorest state in the union. It is also almost the least healthy state, the least educated state, and the most violent state. It is one of the worst states in which to raise a child, and our rank in this regard is dropping.[10] Its social health has been rated the very worst of all states twice running by Fordham University.[11] It is not getting better. If anything it is getting worse.

### “The economy” is plural

Before going further, we should realize that we have been talking about “the economy” as if there were just one of them. The phrase implies a unity of economic interests in society, an idea which Gunnar Myrdal recognized as a “communistic fiction” a half-century ago.[12] Without much thinking about it, most economists assume that the interests of everybody, if not the same, are at least related in a harmonious whole. For economists, it has to be that way, or there is no point in using aggregate statistics, and where would economists’ careers be then? The underlying idea is that

an increase in wealth for somebody will benefit everybody.

This is as much a political fiction as it is an economic one. We like to take for granted that “a rising tide lifts all boats,” and trust economic benefits will “trickle down” – in this case from wealthy households and a single employer in Los Alamos County (the wealthiest county in the nation, and the one with the most millionaires per capita) to poorer households elsewhere.

The “communistic fiction” of what we euphemistically call “the economy” obscures not just different interests in society but also the effects of geography and the boundaries of local jurisdictions, helping us forget that many or even most of the people hired at LANL have moved here from elsewhere, and that taxes are paid in one place and not another. Of LANL’s employees, how many grew up here? The standard myth focuses on “jobs,” as if there were only one labor market. The extent to which LANL enters *local* labor markets is by definition dependent on how many *local* people are hired. Jobs mean nothing to the people who don’t get them.

And what, we should ask, are the goals of economic development anyway? The primary goal has usually been “economic growth,” i.e. growth in “the economy.” *Well who, exactly, should benefit from economic policies? Who, for example, should be the primary beneficiaries, the ones we should keep in the foreground of our thought and plans? Upper-middle-class or millionaire scientists? This is the unspoken assumption made by the economic elite who shape public opinion in New Mexico today.*

### Tax benefits – or costs?

LANL and its subcontractors also pay state and local taxes, although whether LANL is tax-positive or tax-negative, considering the variety of costs it imposes on local governments, is quite another question and one worthy of research. LANL’s fiscal costs to state and local government include: highways and other infrastructure; schools, fire, police, and other local services; congestion in all its forms; demands on resources such as water supply; special costs relating to hazardous materials; environmental regulation and monitoring; and more. For all these reasons it is not clear

Who should be the primary beneficiaries of policy? Upper-middle-class or millionaire scientists? This is the unspoken assumption of the economic elite who shape opinion in New Mexico today.

whether LANL is a net tax boon to New Mexico or its parts.

In addition to fiscal burdens actually carried on various jurisdictions' books,

In addition to fiscal burdens, LANL also imposes uncosted hazards on the state and local jurisdictions as well as households. LANL also imposes uncosted hazards related to its peculiar mission on the state and on local jurisdictions as well as households.

In its operating contract, NNSA has provided its LANL contractor blanket indemnification against all hazards related to nuclear materials and nuclear wastes, many of which hazards government in New Mexico barely acknowledges exist.[13]

In its operating contract, NNSA has provided its LANL contractor blanket indemnification against all hazards related to nuclear materials and nuclear wastes.

### As lab spending has gone up, New Mexico's economic status has gone down

The standard myth, which really amounts to a set of theories as to why LANL *should* be a force for economic development in the region, would be fine if there were some data to support it.

There just isn't any. The economic history of LANL in our region is not one of economic development – quite the reverse. How can this be? As we shall see, there are countervailing factors which act to limit LANL's economic contribution and turn what superficially look like big pluses – big spending, high-tech projects, and high salaries – into big minuses.

What history shows is that as lab spending has increased (and as LANL's sister lab Sandia also increased its spending, more or less in parallel), New Mexico's per capita income rank has significantly *declined* relative to other states (Figure 1), down to its present 48<sup>th</sup> place.[14] Over approximately the same period, New Mexico's growth in income disparity has grown to exceed all but 2 other states.[15] If economic results are what count, we aren't getting them. We are getting economic failure.

We are getting the federal pork: since at least 1981, New Mexico's net per capita federal spending has exceeded that of all other states. Today, New Mexicans get \$2.00 back for every \$1.00 paid in federal taxes. In 2004, the last year for which this data is available, we got a whopping \$10,628 in federal spending per capita.[16] That's a lot

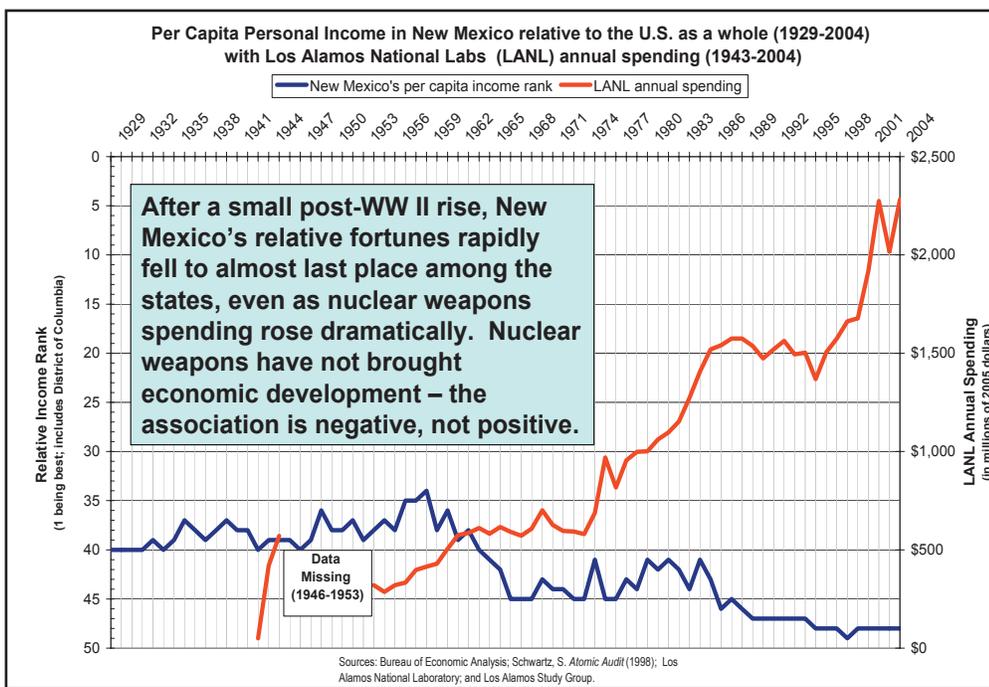


Figure 1: After a small post-WWII rise, New Mexico's relative fortunes fell to almost last place among the states, even as nuclear weapons spending rose dramatically. Nuclear weapons and associated military spending have not brought economic development: quite the reverse!

of money – \$20 B in all for that year, dwarfing our state government and accounting directly (prior to any “multiplier”) for 29% of our gross state product for that year. Such huge sums have been coming to New Mexico year after year. This year (2006) we will get about \$22 B.

What do we have to show for it? Very little in the way of autonomous economic development and very little in social development, suggesting that dependence on federal spending for what surely amounts to well over half the state's economy, when secondary household spending is included, has not been good for us. This observation is just the *opposite* of the “all-pork-is-good” narrative that animates the work of our congressional delegation.

Look: over the past decade and even over the last few years, when lab spending has been far higher than ever before, our health ranking has precipitously declined relative to other states, our educational standing has declined, our violent crime rate has increased relative to other states, and our drug overdose deaths have also increased relative to other states.[17]

Other than Los Alamos itself, communities which have received LANL spending via employees who commute to LANL have not fared particularly well. Over a three-decade period (1969-1999) during which overall LANL spending doubled in constant dollars, relative average per capita income in Rio Arriba County, which receives

far more LANL spending per capita than any other county except Los Alamos, remained essentially unchanged at 51-53% of the national average.[18]

More recent data show that since 1999 there *has* been an uptick in relative personal income in Rio Arriba County, up to 66%

of the national average by 2004. I don't know to what extent this is due to in-migration by, say, better-paid LANL employees and contractors, or to income growth by existing residents, or to new income

as a result of growth in Indian gaming, or to one-time income resulting from the aftermath of the Cerro Grande fire, which brought close to a billion dollars into Los Alamos and surrounding communities in direct payments and reconstruction, or to some other cause.

Despite this heartening increase in average income, however, Rio Arriba County remains poor and deeply troubled. It has a higher drug- and alcohol-related death rate than any other New Mexico county, and has a drug-related death rate three times that of New Mexico as a whole – which in turn is about twice the national average, making the county's rate six times the national average.[19] Despite all the federal money, *or perhaps even because of it*, Rio Arriba

County is a deeply troubled place. It is quite possible that income disparities in the region, especially between Rio Arriba and Los Alamos, are among the causes of Rio Arriba's drug addiction epidemic.[20]

Returning to Figure 1, does the negative correlation observed between *rising* lab spending and *falling* state income rank imply causality – does increased lab spending actually *cause* economic decline, in other words? It sounds far-fetched to many ears in New Mexico, so accustomed to the standard myth, but indeed it might. What this negative correlation certainly *does* mean is that those who believe the labs are good for the state's economy must meet a very heavy burden of proof.

Researchers point to regional income disparity – an “aura of apartheid” – as a cause of Rio Arriba's drug addiction epidemic.

### LANL isn't that great yet but just wait...

A variation of the myth is that even if LANL has not been all that wonderful for the regional economy so far, *it's about to be*, thanks to this or that new gee-whiz economic initiative, or whatever. This myth was reiterated by the Governor's office just a few days ago prior to first drafting this paper.[21] One year we hear that LANL will be the anchor of a new “information highway.” Another year it's “bioinformatics.” Perhaps LANL will be an exciting magnet for venture capital, or maybe for digital film editing. We'll think of something! There would be a long list of failed lab-oriented economic hype if anyone cared to assemble it.

The cumulative fruit is almost trivial: in 2002, LANL claimed a grand total of 258 employees in 51 businesses spun off from LANL in the region – not much to show for six decades of gigabuck investment in so-called “world-class” science.[22] And many of these jobs are surely in Los Alamos itself, not in the communities where they are far more needed.

Another version of the myth involves skipping over the unpleasant economic realities of the past, present, and even the near future to focus on hopes for the “conversion” of LANL to better missions. LANL *could* be good for the region's economy and *could* also provide many other benefits to the nation, *if only* LANL could somehow be “converted.” This has the advantage of avoiding difficult political questions – such as what LANL is doing right now and what it is committed

to doing in the future – namely, becoming a factory for the manufacture of plutonium weapon cores (“pits”) in order to resume U.S. nuclear weapons production. We avoid the difficult “as is” world in favor of the attractive “as if” world. Such thinking remains as lab-centered as ever, which is exactly the problem. Indulgence in such fantasies just waste time and attention while the problems we face get worse.

The “conversion” myth avoids the unpleasant realities of the past, present, and near future – the “as is” world – to focus on an attractive “as if” world where huge nuclear facilities can become whatever we want them to be. Indulgence in such fantasies just wastes time and attention while real problems get worse.

Seldom-asked questions about these proposed new missions might begin with the question of whether they are actually appropriate for an applied science laboratory – here or anywhere. For example, are the proposed new missions (e.g., a new “Manhattan Project” for energy, or “new environmental cleanup technologies”) really science problems at all, or are they really political problems, or perhaps engineering problems? Some new “scientific” missions are little more than wishful thinking.

After threshold questions such as these we must then ask whether LANL is really the place to do this work. Can LANL work on these new problems more quickly,

Can LANL work on big urgent problems in which it has no experience more quickly, more successfully, more cheaply, and with fewer conflicts of interest than all other institutions?

more successfully, more cheaply, and with fewer conflicts of interest than competing institutions? If these new missions are very important – which must be the case if they are to be funded – it is also

very important to succeed. Is it really in the nation's interest to do such-and-such critical project, or part of a project, *at LANL*? If so, what should LANL's portion of the project be?

Above all, could LANL really succeed at brand-new, big missions? At what, exactly, has LANL succeeded in the past 60 years? Peek behind the public relations curtain, and you will find that the cupboard of contributions is pretty bare. Converting LANL, the institution, to important new missions in sustainability sciences, let us say, about as difficult as converting a surplus Abrams tank

to an organic farm. No can do.

Finally, if regional economic development is part of the subtext, as often it is, why precisely will these proposed new missions create economic development when the old missions did not? Or, if getting rid of weapons manufacturing is the subtext, what's the use of replacing the old jobs with new ones, since the new jobs are, barring strong arguments otherwise, no more likely to create economic development in New Mexico than the old ones?

Enormous financial interests are involved. According to DOE, the LANL prime contract is worth \$36.6 B.

### Unwarranted influence

Even in the face of 100% contrary data, faith in the myth that LANL benefits the regional economy remains popular. Why? To understand this we need to look at the political context in which we think about this problem.

Simply put, the public discussion of these issues is almost entirely dominated by the money and political influence of New Mexico's nuclear labs. Almost half of the nation's warhead spending occurs in and through our state (fully half, by some methods of calculation). Enormous financial interests are involved. According to DOE, the current LANL contract alone is worth \$36.6 B.[23]

Campaign contributions flow from the labs to the state's congressional delegation, in quantities as great, or greater, as from any other source.[24] Among colleges and universities, the University of New Mexico is one the largest recipients of Pentagon money in the country.[25] In all these ways and many, many more, nuclear dollars speak very loudly in our impoverished state.

In fact nearly everybody who speaks publicly about LANL's economic impact is either being paid directly by LANL and its political allies (who are themselves supported by LANL) or is otherwise more or less hostage to the interests of the nuclear weapons establishment.

The New Mexico nuclear-military-political complex can make the career of any professional who challenges it difficult. Our capacity for independent thought is limited where the wide-ranging interests of the labs are involved.

Eisenhower's farewell warning about “the acquisition of unwarranted influence, whether sought or unsought, by the military industrial complex” is more than apt, as is his

related warning, that “the nation’s scholars” could become dominated by “Federal employment, project allocations, and the power of money.” Where is this truer than in New Mexico, where in any field there are only a handful of scholars at best?

Make no mistake: the nuclear military-political-academic complex can make career advancement (or even job retention!) difficult or impossible for almost any professional in this state who challenges it – any reporter, editor, teacher or professor, any non-profit director, or any state employee. It is no exaggeration to say that our capacity for independent thought is held hostage in each and every field which touches upon the core interests of the nuclear labs. *This in itself is a very negative economic impact that holds back New Mexico.* The labs keep New Mexico

The most important “pollution” from the labs is intellectual, political, and moral. The greatest barrier to economic development in northern New Mexico is our inability to turn away from The Bomb, admitting our mistake. Without turning *away* we can’t turn *toward* something else with enough vigor to accomplish anything. We drift, prisoners of somebody’s nuclear dream.

form of “pollution” from our nuclear labs is intellectual, political, and moral. After many years of studying the economic impacts of nuclear facilities all over the U.S., Dr. William Weida, formerly chair of economics at Colorado College, concluded that the greatest single barrier to economic development in northern New Mexico, *the biggest barrier we face*, is our collective inability to turn away from the bomb, to recognize that a far-reaching mistake has been made, a mistake both economic and moral. Without turning *away* from our nuclear addiction – which plainly isn’t doing us any good – we can’t turn *toward* something else with enough political and entrepreneurial energy to make any real progress. So we don’t. We drift, prisoners of the nuclear dream. We have, in other words, an addiction. To change the metaphor, we are a “kept state,” kept barefoot and pregnant, pregnant in this case with plutonium pits. It’s an offensive analogy, but our condition is unspeakably rude.

Put yet another way, our state’s

relationship to its federal labs – our largest institutions in dollar terms – is like the “Stockholm Syndrome,” a condition of psychological servitude in which hostages identify with their captors. It isn’t the

Having lots of LANL jobs requires a high military budget, which sucks money from other federal programs and incurs long-term costs, including lots of other jobs.

psychological aspect that most concerns us here, though that is certainly real enough. It is rather the material conflicts of interest that ramify throughout our communities and institutions

that collectively keep us from thinking clearly about the nuclear labs and their effects on the state, and keep us from thinking about how to build a political consensus around human development in New Mexico. Coerced, impoverished, and in many cases frankly bought off, we nurse the tired old myths of the Cold War and the economic development myths of the 1950s. Nobody challenges those myths. It’s time we did.

### LANL precludes other economic options

Despite all this (or perhaps because of it), I still hear the cry: “But doesn’t LANL provide a lot of jobs?” Sure it does. It’s just that those jobs come with very big strings attached. All those strings together sum up to something like servitude. Something like colonization, conquest, or takeover.

We have discussed some of those strings from the local perspective, and we’ll see more of them in a moment. But now look at the national picture: *having lots of LANL jobs requires a high military budget, which sucks money from other federal programs and incurs long-term costs like massive government debt and ever-increasing pollution.* In other words, LANL jobs have opportunity costs, huge ones, and these include other possible New Mexico jobs, a very great lot of them.

If you think about it, the choice to re-start nuclear weapons production, for example – a choice which increasingly supports the jobs at LANL – is not just a single itty-bitty policy choice. It entails choices about the nature and direction of the federal budget as a whole, *as well as the shape of the U.S. economy and foreign policy.* Since over half of New Mexico’s economy is directly or indirectly dependent on federal spending, the overall thrust of the federal budget will affect what happens in our state mightily.

Recall that LANL is more than three

times its Cold War size (in constant dollars). Such huge growth does not come about without accompanying growth in the U.S. military budget. LANL’s budget is now about 1/400 of U.S. military spending, and whatever the precise relationship between the two over time in the past or in the future may be, we can be assured that LANL appropriations require an aggressive nuclear policy, the only purpose of which is to support an overall aggressive military posture, which is very expensive indeed in every way.

Large LANL appropriations require an aggressive military and foreign policy.

Annual U.S. military spending, not counting Homeland Security, is now a little more than \$900 B, roughly 7% of the gross domestic product (GDP) or about \$7,700 per U.S. household. Roughly one-fifth of this is new federal borrowing. Another fifth of this \$900 B in military spending is interest payments on past military-related debt, which are rising.

Annual U.S. military spending is now \$7,700 per U.S. household.

Again excluding homeland security, military spending has grown to comprise *two-thirds of all discretionary spending* and

Nuclear weapons and the security paradigm they stand for are utterly incompatible with sustainable economic development in New Mexico – or anywhere.

about one-third of all federal outlays.[26] By way of international comparison, U.S. military spending equals that of all other nations in the world combined.

So before we can even think about economic development in New Mexico, we must come to grips with the reality that funding the U.S. military at such a grandiose scale

strongly constrains the investments we in New Mexico can make in education, infrastructure, and every other public purpose. These monies come, for the most part, right out of our paychecks every one of them. They disproportionately affect working people. New Mexicans will pay \$11.0 B in federal taxes this year,[27] of which about \$4.85 billion will go to the military, including to our own labs and bases. The military bases turn out to be roughly a break-even proposition; the nuclear labs are our federal pork “profit.” These taxes come from a broad base and go to a narrow group of recipients.

We *could* build an energy-efficient infrastructure in this country that would enable us to help prevent or cope with the worst effects of hydrocarbon shortages and

the catastrophe now stalking our children and all the species in the world from global warming. Since we *must* deal with these problems, and they being huge, we *will* invest trillions of dollars. (The alternative – not doing so and instead suffering a “long emergency” of economic, environmental and societal collapse – would of course cost much more than that, but no one would be able to pay it.) But if two-thirds of federal discretionary spending keeps going to the military and to LANL, to the tune of \$7,700 per household, isn't our goose pretty much cooked?

For reasons like these, nuclear weapons and the security paradigm they stand for are utterly incompatible not only with economic development in New Mexico, but economic development anywhere – except for a few. Economic development requires first survival.[28]

The price we pay for those few high-paying jobs at LANL includes what could be nothing less than a full-employment program for New Mexicans based on investments in human needs, sustainability, education, and the prevention of an environmental catastrophe that threatens every living thing on the planet. Of course that would be a different kind of national security, and it would have very different economic consequences for New Mexico and the communities around LANL. Better ones.

The myth that LANL is an economic boon leaves out not only our historical decline relative to other states and the present-day situation that has resulted from it. It also leaves out our choices about the future, especially the fact that we actually *could* choose. That may be the best-kept secret of all: we have a choice. We don't have to submit. The abuse will only get worse until we say learn to say no.

The policy choices aren't, in the end, all that complicated. They resolve themselves into two quite different approaches to national security and to regional development. One emphasizes death-oriented solutions to the problems we face as a society (as in, “how can we arrange to be able to blow things up better?”); the other, life-oriented solutions (as in, how can we provide accessible jobs and protect the environment, now in the initial stages of global collapse, while protecting households from the negative effects of energy costs?).

### New Mexico's non-military dependence

If New Mexico is dependent on its federal military spending, it is twice as

dependent on its non-military spending, because the state receives fully twice as much non-military as military federal spending, even with Veterans Affairs (VA) spending included in the latter. Geographically, Los Alamos is the only NM county in which military spending exceeds non-military. *Transferring resources from military to non-military programs would benefit most NM*

New Mexico is twice as dependent on non-military as military federal spending. Geographically, Los Alamos is the only New Mexico county in which military spending exceeds non-military. Transferring resources from military to non-military programs would benefit most NM counties right now.

*counties right now.*

Since almost \$5 B in federal taxes taken from New Mexicans is used to pay for the military, you might wonder which counties actually show a “military profit” in the federal redistribution (i.e. pork) game. *As it turns*

*out, most NM counties pay more in taxes for the military (mostly in the form of payroll taxes) than they get back in military spending.* This is true even when commuting between counties by military (and laboratory) employees is considered.

Most New Mexico counties pay more in taxes for the military than they get back in military spending.

New Mexico's military spending, and the economic stimulus it provides, is largely concentrated in just a few places: at the state's four military bases, the associated nearby contractors, the two big nuclear labs, and the Eddy County nuclear waste disposal site (WIPP).

Let's look at three counties near Los Alamos, beginning with Taos County. Of \$222 M in total federal spending in Taos County in 2004, about \$8.3 M or 3.7% came from commuters to LANL, \$7.7 M or 3.4% from other military spending, and \$8.8 M or 3.9% from the Department of Veterans Affairs. In all, only 11% of Taos County federal spending was military-related, even including the VA. The rest – \$197 M – lies

Even in Rio Arriba County, non-military spending is much more important than military spending, including LANL.

in programs which are increasingly being cannibalized to pay for other federal priorities, especially the military, which includes as a key enabling element the restart of nuclear weapons production at

LANL.

Do LANL jobs provide a net economic

stimulus for Taos County, then, if their costs in other federal programs – impossible to quantify, but real – are included? I doubt it very much. LANL employees and contractors directly contribute only 1% of Taos County's total personal income. This is important for the people involved, but not for so many others.[29] Contrariwise, the cost to them through the federal priorities they embody is great. Federal programs needed and used by Taosenos must be constrained or cut to support the military, including LANL.

Rio Arriba County is far more dependent on federal spending than Taos County and upon LANL in particular. Some 36% (\$175 M) of its \$491 M in 2004 federal spending originates on “The Hill,” mostly in the form of commuter salaries. LANL spending accounted for fully 20% of Rio Arriba County's total personal income, with non-military federal spending accounting for another 36%, making the federal government the direct or nearly-direct source of 56% of all county income. Again, note that even in Rio Arriba County, non-military spending is much more important than military spending in all forms, including that from LANL.

LANL's high salaries badly distort the regional labor market, impoverishing all other enterprises.

Santa Fe County received \$246 M in LANL monies in 2004, again according to LANL. Other federal spending in the County was almost six times greater, however, for a total of \$1.43 B that year. With \$4.8 B in total personal income in the County in 2004, LANL's direct contribution (5.1%) would certainly be noticed if it suddenly all disappeared, but for how long? One or two years?

### More reasons why the myth is wrong

We've seen that the myth of military economic dependence in New Mexico, and of benefit from LANL in particular, doesn't jive with New Mexico's history or with current realities. We've briefly discussed some of the reasons why this might be the case. There are, however, many more such reasons:

- LANL's high salaries, necessary to attract talented individuals to nuclear weapons work, badly distort the regional labor market. These salaries attract many of the most ambitious and talented workers in the region, impoverishing all other enterprises of their talents and skills. In professional categories LANL's salaries can easily be twice or even three times regional norms,

and LANL offers a stellar benefits package as well. Small businesses want and need the very labor force LANL wants, but they cannot compete successfully for it. The ranks of potential entrepreneurs, especially the very important subgroup with regional loyalties, are thinned in exactly the same way.[30]

- LANL employees, being paid much more than workers elsewhere, help drive up home and land prices, especially in some markets of interest to local people.

- LANL's technology will never create many spin-off businesses because most of LANL's work is a) secret, b) frequently involves unsafe, non-commercial materials (e.g. plutonium, beryllium) and c) is unique to nuclear weapons and other "cost-is-no-object" national security missions. Many other factors also limit the transfer of

LANL's technology will never create many spin-off businesses, especially in New Mexico.

technology from LANL.[31] The most powerful of these have to do with a syndrome of poverty, income disparity, and lack

of political enfranchisement that affects virtually every New Mexico institution.

- Many of LANL's employees are highly specialized scientists who have little or no ready contribution to make to the civilian economy when they retire or are laid off. Furthermore, after long acculturation to LANL's free and easy ways, many have no interest in more hardscrabble environments. Consulting to LANL keeps many busy after formal "separation." Few have the skills, or want to become, New Mexico entrepreneurs.

- Many of LANL's most expensive procurement needs are highly specialized, unavailable from the few and generic industrial vendors supported by our small regional markets.

- LANL creates danger. LANL's primary mission, in fact, is just the production of danger for others. It is no wonder that some of that danger leaks into the here and now. The probabilities of various possible kinds of dangerous events are *risks*; risks multiplied by *consequences* are *hazards*. Hazard *perceptions* affect markets, including real estate markets. One serious accident or serious incident of sabotage or terrorism at LANL could affect property values in Los Alamos and White Rock, in Las Campanas, and elsewhere downwind.

LANL's primary mission is the production of danger and fear.

- LANL pollutes all the time. The total amount of pollution permanently emplaced at LANL increases every week, and the rate of increase is expected to increase dramatically as LANL ramps up industrial-scale plutonium manufacturing operations. LANL's nuclear dump is unlined, unlicensed, unregulated, and is now

The total amount of pollution permanently emplaced at LANL increases every week.

managed by the nuclear weapons manufacturing directorate, not environmental

scientists. Needless to say, the economic impact of LANL's pollution is not defined by analytical concentrations but rather by perceptions and therefore does not begin only above "acceptable" analytical standards of pollution. The combination of perceived danger and pollution can affect not just property values but also location decisions for firms, as well as some types of tourism choices. Perceptions combine to form *reputation* (how a region is viewed from the outside) as well as *identity* (how it is perceived from the inside). *Both are major determinants of a region's economic potential*. Fostering a positive reputation is a major enterprise within at least two state departments (Economic Development and Tourism) as well as the Governor's office itself. It is a delicate affair, given the sorry state of New Mexico's society. Our attractiveness counts in location decisions *relative to other destinations*, and when enough weight of bad news is placed on the balance scale of relative attractiveness, the pan can move quickly from a high to a low position.

Social cohesion is frequently the first casualty of any polluting facility.

- All facilities which are large relative to their hinterlands can produce negative social impacts. These social impacts are likely to be exacerbated if there are unusually high salaries or unusually high salary differentials within the facility, or if there are a large number of people who move in to work at the facility from afar. They can be worsened by pollution, which affects those who live nearby more than those who can afford to live far away. As William Weida has pointed out, social cohesion is frequently the first casualty of any large polluting facility in a rural area. This cohesion is usually the most precious resource in the community, necessary for autonomous, effective solutions to any and all community-wide problems – including the economic development problem.

- LANL, which is secret on the one hand and devoted to weapons of mass destruction on the other, produces jobs without public meaning – especially any positive one. Hence it produces no positive "story" or identity for the community as a whole. A coherent "story" or self-understanding in a community enables that community to rally energy and resources to solve problems. How much more is this true when a facility: a) is not situated in one's own community, as is the case for about a third of LANL's workers; b) belongs to and is run by a foreign culture (as is the view, to a greater or lesser extent, in the Indian communities surrounding LANL); c) is run primarily by members of another race (as is the case for Indian and Hispanic New Mexicans); d) has thousands of upper-level staff who have moved here from afar; and e) does work which one is not truly proud of. LANL, in other words, can never be a source of community pride. This is true for fundamental reasons and will always be true despite endless efforts by community relations workers to repair or mitigate the problem. In fact there is anecdotal evidence that work at LANL is experienced as shameful by some employees. Shameful or not, depression and stress are important major public health problems in Los Alamos and suicide rates are high; attempted youth suicide was recently labeled the most important public health problem in Los Alamos in County Council testimony.

In this article we've only barely scratched the surface of many key issues regarding LANL's economic benefit or harm, and we've had to proceed almost from first principles, in part because there is essentially no work being done on this subject in this state. Despite its poverty, the state has only a handful at best of economists actively working on how to remedy our state's problems. For them, professional norms virtually require highly-conservative neoliberal assumptions that are really more embedded political choices – and also career choices – than anything else. Many of those assumptions, nearly always unstated, are just flat wrong. On top of this is the direct and almost all-powerful influence of the labs and their political allies, as noted above.

The upshot is an embarrassed silence. For the most part there is no public thinking about these issues at all. No one wants to cross the powerful forces that use and abuse us, or to discuss the state's real problems too openly, which could make our remaining assets seem less "enchanted" to investors.

New Mexico is unlikely to improve much until that silence is broken and until, above all, the voices of the poor are heard in the halls of power. Heard – and attended to, made central in public policy. The exclusion of the poor is the central political problem in New Mexico. Neither can any significant progress be made until we demand – not just meekly ask, but effectively demand – an end to the state’s tacit support for institutions of mass violence, which impoverish and degrade us.

The exclusion of the poor is the central political problem in New Mexico.

## Notes

<sup>1</sup> Unfortunately, the social and political components of the problem are usually banished from discussion for political reasons. This has the effect of reducing regional economic analysis to a kind of mindless accounting with little ability to inform progressive policy.

<sup>2</sup> Raw data provided by LANL and from laboratory tables, DOE congressional budget requests, and for the Manhattan Project years calculated from Kevin O’Neill in Schwartz et. al., *Atomic Audit: The Costs and Consequences of U.S. Nuclear Weapons since 1940*. Present value calculated using national consumer price index, Bureau of Labor Statistics.

<sup>3</sup> Corporation for Enterprise Development, “2006 Development Report Card for the States.” I do not have more recent data.

<sup>4</sup> National Science Foundation, *Science and Engineering Indicators 2006*, <http://www.nsf.gov/statistics/seind06/> is the source of this and subsequent information, down to “high-technology” employment in New Mexico. I calculated the efficiency of R&D in attracting venture capital from source tables of NSF data.

<sup>5</sup> LANL, Office of Management and Budget, and DOE laboratory tables, op. cit. These mid-2006 figures include gross receipts taxes, profits (“fees”), and pension fund contributions. The latter two leave the state immediately.

<sup>6</sup> Accurate personnel figures for LANL are elusive and often contradictory. The figure cited is adapted from NNSA (Crandall briefing, 2005) and LANL (Data Profile 2006), and includes 3,887 technical staff members, 1,828 technicians, 2,510 administrative workers, 386 post-docs, 375 graduate students, an estimated 3,040 contractor employees (KSL, PTLA, Butler, Comforce, Plus, Weirich), plus another 974 (to make an even 13,000) including consultants (raw figure: 783, many very part-time) and “special program guests” (raw figure: 506, many assumed to be very part time), and construction workers. I have subtracted a round 1,000 workers from this 13,000 to reflect the planned attrition and subcontractor layoffs

which have been in progress for some months now. Further layoffs and attrition are expected next year. Should an increase in construction occur absent new funding sources, or should the LANL budget fail to keep pace with inflation, further shrinkage will occur. As of late 2006, both are likely.

<sup>7</sup> LANL’s 2005 “Community Impact” fact sheet shows \$538 M in procurement spending, of which \$398 M is spent in northern NM. Of this, 81% is spent in Los Alamos County. I believe most of this spending is for contract employees included in the employment figures given in note 2. Detailed data is not available, but what is left after this double-counting is removed will include categories like wholesale goods brokered through NM sellers, which properly counts as “NM procurement” but provides little regional fiscal stimulus.

<sup>8</sup> Dr. William Weida, Global Resource Action Center for the Environment (GRACE), personal communication.

<sup>9</sup> Corporation for Enterprise Development, op. cit.

<sup>10</sup> For this and much more with sources, see Los Alamos Study Group, “New Mexico’s Economic and Social Health: Existing Policies are Failing,” <http://www.lasg.org/NMecon05.htm>. See also Annie E. Casey Foundation, “Kids Count,” at <http://www.aecf.org/> and for example Leann Holt, “Report: N.M. Has High Child Poverty,” *Albuquerque Journal*, 6/27/06.

<sup>11</sup> Garcia, Patricia. “State’s social health ailing, study finds,” *The Albuquerque Tribune*, 11/17/03.

<sup>12</sup> Cited in Hannah Arendt, *The Human Condition*, 1958, p. 44, U. Chicago Press.

<sup>13</sup> Los Alamos Study Group analysis of the new LANL operating contract by Beth Enson and Damon Hill. The contract can be found at <http://www.doeal.gov/laso/NewContract.htm>.

<sup>14</sup> Los Alamos Study Group, “New Mexico’s Economic and Social Health: Existing Policies are Failing.”

<sup>15</sup> Bernstein, Jared et. al., “Pulling Apart: A State by State Analysis of Income Trends,” Center on Budget and Policy Priorities/ Economic Policy Institute, 2000.

<sup>16</sup> See Tax Foundation, <http://www.taxfoundation.org/> and also the Census Bureau, “Consolidated Federal Funds Report” <http://harvester.census.gov/cffr/>.

<sup>17</sup> Study Group, “New Mexico’s Economic and Social Health: Existing Policies are Failing,” op. cit. We welcome more research in this area, at a minimum to better pin down long-term trends.

<sup>18</sup> Rio Arriba County received about \$4,260 per capita from LANL in 2004 (data from LANL’s “Community Impact” fact sheet, which may double-count some procurement; see note 4), than any county except Los Alamos itself. Santa Fe County LANL spending was by comparison only about \$1,840 per capita in 2004, 43% as much.

<sup>19</sup> New Mexico Department of Health, “2004 Social Indicator Report,” [http://www.health.state.nm.us/pdf/Social\\_Indicator\\_NM\\_2004.pdf](http://www.health.state.nm.us/pdf/Social_Indicator_NM_2004.pdf)

<sup>20</sup> Angela Garcia, in “Land of Disenchantment,” *High Country News*, 4/3/06, suggests that proximity to Los Alamos is a major cause of drug abuse in Rio Arriba County.

“Why heroin? Why here? Ask any Hispano, addict or not, and you are bound to get an earful.

The first reason is probably the least surprising: the great disparity of wealth in northern New Mexico. The Española Valley itself has never been a wealthy area, but in recent decades tremendous amounts of money have poured into nearby towns, such as Santa Fe and Los Alamos.

Severe drug addiction in poor communities adjacent to affluent ones is a pattern that social scientists have documented worldwide. Some credit the struggle of living in severe poverty while others enjoy lives of ease. Others describe the stigma of crossing the lines between rich and poor, and the abuse that frequently accompanies this crossing.

Anthropologist Philippe Bourgois has documented this pattern of drug use in New York and San Francisco — cities where neighborhoods of extreme wealth and poverty border each other. Harmful public policy weakens local economies and the social welfare system, and leads to the vast disparities in incarceration rates among different races and ethnicities.

This creates what Bourgois calls “an aura of apartheid.” Even neighborhoods that were once vibrant and healthy are socially and economically marginalized; drug use becomes endemic.

Last year, the World Health Organization launched the Commission on the Social Determinants of Health. Echoing the long-held view of local activists, researchers and health providers, the commission found that living conditions — social, political and economic — play a major role in drug addiction. “It is poverty and social inequality that kills,” says Nancy Krieger, professor of public health at Harvard University. According to Krieger, inequality “deprives individuals and communities of a healthy start in life, increases their burden of disability and disease, and brings early death.”

In the Española Valley, the inequality is palpable. Many locals blame the Los Alamos National Laboratories for the region’s deepening chasm between rich and poor. Since the 1940s, the Labs have demanded a local “nonprofessional” work force — maintenance and security crews, for example. Today, the Labs are the largest

employer of Valley residents. During rush hour, the Old Los Alamos Highway, which connects Española with the “Atomic City,” is bumper-to-bumper with frustrated commuters.

Meanwhile, back at home, many of the old family farms lie untended.

Los Alamos is the wealthiest county in the United States, with a median household income of over \$93,000 and a below-poverty rate of under 3 percent. Rio Arriba County, which encompasses much of the Española Valley below, is among New Mexico’s poorest counties, with a median income of \$29,000. One in five Valley residents lives below the poverty line.

<sup>21</sup> “A spokesman for the Governor said Bowles will help the state advance New Mexico’s standing as a national leader in the high tech field... ‘Tom’s job will be to help the state get more involved in the high tech industry and to act as a liaison between the state and labs and the industry,’ said Jon Goldstein in the governor’s office.” “Governor taps [former (LANL) Chief Science Officer Thomas] Bowles as science advisor,” Roger Snodgrass, Los Alamos Monitor, 7/7/06.

<sup>22</sup> LANL Industrial Business Development Program Office documents, 2001.

<sup>23</sup> See Los Alamos Study Group, “Competition - or Collusion? Privatization and Crony Capitalism in the Nuclear Weapons Complex: Some Questions from New Mexico,” <http://www.lasg.org/NNSAPrivatization.pdf>, and more broadly, “About the LANS Partners,” at <http://www.lasg.org/technical/LANS.htm>.

<sup>24</sup> See current contribution data for New Mexico’s congressional delegation at <http://www.opensecrets.org/>.

<sup>25</sup> UNM ranked #15 in Pentagon money in 2001; see analysis by Darwin Bond-Graham at <http://www.fiatpax.net/profiles.html>.

<sup>26</sup> U.S. military spending in FY06 was at least \$706.5 B in discretionary spending, in addition to about \$179 B in mandatory spending (namely military interest payments, part of \$399 B in estimated interest to be paid in FY06). Total discretionary spending in FY06 was estimated to be about \$1,032 B (Table 8.7, p. 154, *Historical Tables*, Budget of the U.S. Government FY2007). Total mandatory spending for FY06 was expected to be \$ 1,677 B (Table 8.5, p. 142, op. cit.).

<sup>27</sup> The Tax Foundation, <http://www.taxfoundation.org/>

<sup>28</sup> These themes are expertly and impressively developed in detail in the UK Treasury Department’s “Stern Review of the Economics of Global Climate Change,” October 30, 2006, at [http://www.hm-treasury.gov.uk/independent\\_reviews/stern\\_review\\_economics\\_climate\\_change/sternreview\\_index.cfm](http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/sternreview_index.cfm).

<sup>29</sup> Bureau of Economic Analysis, <http://www.bea.gov/bea/regional/bearfacts/countybf.cfm>

<sup>30</sup> A second labor market effect occurs in more rural areas near military bases: spouses of base personnel enter these local labor markets and often competing successfully against local competitors for a variety of reasons. In effect, “middle-tier” local employment options can close for aspiring poor applicants in small towns.

<sup>31</sup> The author and Lisa Oberteuffer wrote an appreciation of this and related issues for Concerned Citizens for Nuclear Safety in 1992: “The Conversion Of Los Alamos National Laboratory To A Peacetime Mission: Barriers And Opportunities.” Available from the Study Group.