

Chapter 5 - An Alternative To The Permanent War Economy: Reindustrializing the U.S. (Beyond a War Economy)

In order to move beyond the permanent war economy and reindustrialization, American engineers and workers not only must assume control over the way their work is organized. They must understand that there is an alternative. But, as this final chapter argues, they also need a way to mobilize the vast resources of American skills and production, a project that can lead the way to reindustrializing the U.S. economy.

This second requirement is reasonably fulfilled by the imaginative exercise from the American Society of Civil Engineers. Their Report Card that assigns a grade for each principal aspect of U.S. infrastructure is a workable outline for a national effort to reindustrialize, to restore production competence in the principal civilian industries of the U.S. For more than a century, American workers showed the way for excellence in manufacturing production in both consumer and capital goods. The major barrier to that restoration is the war economy whose inducements must be overcome if the reindustrialization of the U.S. is to be achieved. The great project—upgrading the main infrastructure elements of the U.S.—will cost an estimated \$2.3 trillion over a five year period. If executed within the framework that was detailed for 2003 Report Card for America's Infrastructure, (see Appendix B) it would produce a host of transforming improvements in the quality of American life.

A STRATEGY FOR REINDUSTRIALIZATION: REPAIRING AMERICA'S INFRASTRUCTURE

At the very time that major evacuation of industrial production has been taking place, the American Society of Civil Engineers was formulating and presenting their 2001 Report Card for America's Infrastructure.

ASCE 2001 report card for Americas infrastructure		
Roads	D+	One-third of the nation's major roads are in poor or mediocre condition, costing American drivers an estimated \$5.8 billion a year. Road conditions contribute to as many as 13,800 highway fatalities annually. Twenty seven percent of America's urban freeways — which account for 61% of all miles driven — are congested.
Bridges	C	As of 1998, 29% of the nation's bridges were structurally deficient or functionally obsolete, an improvement from 31% in 1996. It is estimated that it will cost \$10.6 billion a year for 20 years to eliminate all bridge deficiencies.
Transit	C-	Transit ridership has increased 15% since 1995 — faster than airline or highway

		transportation. Capital spending must increase 41% just to maintain the system in its present condition.
Aviation	D	Airport capacity has increased only 1% in the past 10 years, while air traffic has increased 37% during that time. Airport congestion delayed nearly 50,000 flights in one month alone last year. Congestion also jeopardizes safety – there were 429 runway incursions (“near misses”) reported in 2000, up 25% from 1999.
Schools	D–	Due to either aging or outdated facilities, or severe overcrowding, 75% of our nation’s school buildings are inadequate to meet the needs of school children. The average cost of capital investment needed is \$3,800 per student, more than half the average cost to educate that student for one year. Since 1998, the total need has increased from \$112 billion to \$127 billion.
Drinking Water	D	The nation’s 54,000 drinking water systems face an annual shortfall of \$11 billion needed to replace facilities that are nearing the end of their useful life and to comply with federal water regulations. Non-point source pollution remains the most significant threat to water quality.
Wastewater	D	The nation’s 16,000 wastewater systems face enormous needs. Some sewer systems are 100 years old. Currently, there is a \$12 billion annual shortfall in funding for infrastructure needs in this category; however, federal funding has remained flat for a decade. More than one-third of U.S. surface waters do not meet water quality standards.
Dams	D	There are more than 2,100 unsafe dams in the United States. There were 61 reported dam failures in the past two years. The number of “high-hazard potential dams” – those whose failure would cause loss of life – increased from 9,281 in 1998 to 9,921 in 2001.
Solid Waste	C+	The amount of solid waste sent to landfills

		has declined 13% since 1990, while the amount of waste recovered through recycling has nearly doubled. Most states have ten years' worth of landfill capacity and waste-to-energy plants now manage 17% of the nation's trash.
Hazardous Waste	D+	Effective regulation and enforcement have largely halted the contamination of new sites. Aided by the best clean-up technology in the world, the rate of Superfund clean-up has quickened – though not enough to keep pace with the numbers of new sites listed as the backlog of potential sites is assessed.
Navigable Waterways	D+	The U.S. Army Corps of Engineers has a backlog of \$38 billion in active authorized projects. On the inland waterways system, 44% of all the lock chambers have already exceeded their 50-year design lives. Key deep-draft channels are inadequate for the mega-container ships, which are the world standard for international trade; and intermodal connectors to ports are in poor condition. Transportation demand on waterways is expected to double by 2020, and serious performance problems are likely if current levels of investment continue.
Energy	D+	Since 1990, actual capacity has increased only about 7,000 megawatts (MW) per year, an annual shortfall of 30%. More than 10,000 MW of capacity will have to be added each year until 2008 to keep up with the 1.8% annual growth in demand. The U.S. energy transmission infrastructure relies on older technology, raising questions of long-term reliability.

America's Infrastructure G.P.A. = D+ Total Investment Needs = \$ 1.3 Trillion <i>(estimated 5-year need)</i>	A = Exceptional B = Good C = Fair D = Poor F = Inadequate	= Each category was evaluated on the basis of condition and performance, capacity vs. need, and funding vs. need.
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For each of the infrastructure areas, the Civil Engineers assessed not only the quality of current performance, but also the cost of maintaining facilities at their present state and, crucially, the cost of bringing each area up to grade A performance. For 2001 conditions the Civil Engineers estimated the 5-year cost of that work at \$1.3 trillion. A further set of observations for 2003 conditions led the Civil Engineers to estimate the investment needs at \$1.6 trillion.

Consider also, adding two items to the Civil Engineer's list: repair of "worst case" housing and electrification of U.S. railroads. From the *American Housing Survey, 1998* we obtain the best available assessment of the number of dwelling units that were classified as "worst case" housing. An estimated cost for repairing severely depleted housing is \$369 billion. This is the fund required to upgrade to acceptable levels the housing for 5.32 million families.¹

The second recommended addition to the Civil Engineer's *Report Card for America's Infrastructure* is the electrification of the main line railroads of the United States. Continuous monitoring of this topic by Professor John E. Ullmann enabled him to estimate that the cost of electrifying and otherwise modernizing American railroads would require an outlay of \$250 billion.² This will give the U.S. a modern, hi-tech rail system that will deliver the sort of travel now available on the best Japanese and French railroads.

The combined investment cost of this infrastructure upgrading in the United States, including housing and rail electrification, will require an outlay of \$2.3 trillion over five years.

But how could all this be paid for? Two major sources of financing suggest themselves. First, reduction of overblown military budgets whose magnitudes are set for operating global hegemony campaigns. Renouncing military adventurism would free hundreds of billions each year for life-serving ends. A second prospective source is a reduction in the tax cuts that were engineered by the George W. Bush administration on behalf of the richest 5 percent of Americans. According to Citizens for Tax Justice between 2001 and 2010 these tax cuts will cost \$1.7 trillion in lost federal revenue. Taken together, these two sources could account for the lion's share of the \$2.3 trillion needed for U.S. infrastructure repair.

The Civil Engineers have performed an enormous service for the American people by applying their professional talents and judgments to produce a workable assessment of the cost of making a strategic set of improvements in the quality of life in the United States. At no point in their Report Card do the Civil Engineers suggest that they had depended on government funding to perform their assessment. Accordingly, the Report Card is a gift from America's oldest engineering society to the people of the United States. If this work were done, what would be the effects on employment and income in the U.S.?

In order to make a beginning in understanding of employment and income effects I invited the attention of Dr. Greg Bischak, Senior Economist at the *Appalachian Regional Commission*. I asked him to address the topic, "National Economic Effects Of A Shift In Federal Priorities" where the meaning of "shift" is defined by priority attention to renewal of infrastructure sectors that were critiqued by the American Society Of Civil Engineers. The full statement of Dr. Bishak's methods, analysis and statistical results in terms of possible employment and income are presented in Appendix A. As requested, he has focused on prospective employment and personal income. He gives particular attention to the employment consequences from a shift in federal priorities to that recommended by the civil engineers, with the addition of housing and rail electrification projects.

According to Dr. Bischak, if the recommendations of the Report Card are implemented then there is a prospect of generating from 2.7 to 4.7 million new jobs for Americans. These results are the calculable effects from sophisticated, economic-statistical methods that were applied to this problem. Thus the additional employment estimates include direct, indirect and induced effects of the investment impacts.³

Americans need a major “shot in the arm” of fresh, productive work to compensate for the ongoing, wholesale destruction of U.S. industries, employment and communities. There is no doubt that such a renewal requires a major revision of government’s policy and behavior. The U.S. drive for hegemonic power worldwide must be stopped and reversed. The river of funds and resources poured into the Pentagon for advancing its hegemonic power must be redirected to support life-serving production, for America.

STRATEGIC ROLE OF CAPITAL GOODS

A serious effort to repair and upgrade U.S. infrastructure will have a huge positive effect on the U.S. economy. Fixing the segments of infrastructure described in the *ASCE Report Card* will require the purchase of significant quantities of specialized machinery. For example: repairing bridges requires the use of particular kinds of cranes and power tools; fixing up roads requires specialized repaving equipment. Building all of this new machinery requires supplies of steel for raw material, machine tools for shaping the steel, and electricity to power the machine tools. A program to fix up infrastructure would quickly create a giant demand for all kinds of machinery, as well as for steel and electricity. For this reason, infrastructure renewal will create jobs outside the infrastructure sector itself, and have a large effect on the economy as a whole.

A part of this effect would be lost, however, if the main needed equipment and supplies were imported rather than produced domestically. For this reason, a vital part of a program of infrastructure renewal must be a wide-ranging effort to improve the productivity of capital & labor in U.S. capital goods production. For more on the feasibility of capital goods production in the U.S., see the comparison, (above) of characteristics and prices of “machining centers” built by Haas Automation (U.S. Based) and Mazak (Japan / Global Based).

Make no mistake, this is not advocacy of Autarchy-U.S.A. Rather, we can never be a good neighbor in relation to other nations and peoples, as long as the largest single quantity of our resources is directed for Pentagon use. If you entertain any doubt about the possible scale of effect from a new and constructive policy, you have only to examine once again the data measuring the destruction of production competence that are reported in Chapter 3. The plan to implement the infrastructure recommendations is a strategic plan to reverse this decay in production, employment and quality of our lives.

Please recall the first paragraph of this book. There is Mr. Rumsfeld, the Secretary of Defense, spelling out the fact that the Pentagon couldn’t pass the audit, couldn’t account for what it received in return for paying out \$2.3 trillion to various suppliers.

By contrast, here we propose spending \$2.3 trillion on a carefully drawn itemized list of expenditures in a national effort whose effects will change many qualities of American life from Grade D to Grade A. None of this is to say that the myriad details of such a vast effort can proceed without setbacks and defects. But it is not unreasonable to judge that the very effort to achieve the upgrading of American life will be worthwhile in its own right.

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In the earlier chapters of this book I have shown that a permanent war economy, with its prospect of successive Vietnam-type wars is now a built-in feature of the political economy of the United States. In industry, the U.S. now has a very large and centrally controlled array of firms and laboratories that cater to the requirements of weapons production and military conquests.

Those firms, and their host of skilled blue- and white-collar workers and managers, have been trained to operate in a cost-maximizing fashion—as I outlined in Chapter One, above. Recall that the Pentagon-serving, cost-maximizing style prescribed “historical costing”, and guaranteed price escalation as the baseline for price setting. The rejected alternative was “engineering costing”, that required examination of feasible alternatives and a preference for least-cost methods.

The Pentagon’s policy prescription has had a mighty effect in rendering American firms technically and economically incompetent for civilian production. For example, when the city of New York invited bids for new operating equipment for its subway rail system, (of 6,000 cars) no U.S. firm even offered a bid on this multi-billion dollar project. We now learn that the New York Transit Authority is researching methods for computerized control of its subway system. “The project is being led by Siemens Transportation Systems Inc., the company that brought Paris the driverless Meteor Metro line, which opened in 1998.”⁴

The Governor of New York State presides over the New York Transit Authority that is now spending \$3-4 billion on purchasing new subway cars. If this manufacturing work were done by American companies, with factories in the U.S. – rather than by Kawasaki of Japan, Bombardier of Canada and Alstom of France – it would generate, directly and indirectly, about 32,000 man-years of work for Americans.⁵

But when the New York Transit Authority requested bids for the \$3 billion-plus contracts, not one U.S. based firm offered a bid. The absence of American firms from the largest subway-car manufacturing project in history sparked no response from the New York City or State governments. Most likely these officials did not realize that purchasing \$3 billion worth of subway cars from foreign manufacturers translates into a huge loss of jobs, capital investment and profits for the U.S. No attention was paid to America’s failure to compete.

An alternative scenario is possible. Imagine U.S. factories and a U.S. labor force set up to deliver 6 new subway cars each week, (ie: 300 per year). Such an operation would replace the 6,000 cars of the New York City Subway system over a twenty-year cycle. This model, as well as providing stable employment for a sizable workforce, would also allow the subway system to constantly phase in new developments in railcar technology. With the current mass purchasing of subway cars, New York City will be stuck with a full fleet of 2003 era subway cars through 2043. Furthermore, a stable production system for New York City could be geared up to produce cars for other U.S. cities’ subway systems as well.

However, establishing such a production system requires well-trained engineers to design the key subway transportation equipments. But it is almost 25 years since the last textbook was published in the United States on these topics: *Urban Public Transportation* by Vukan Vuchic (Prentice Hall, 1981). At this writing there is a lack of schools, teachers and books dealing with rail transportation. Suitable textbooks will have to be translated from French, German or Japanese. In the United States, the traditional depositories of knowledge for these subjects have been wiped out. There are no workplaces that prospective workers can visit to become acquainted with the shape of a productive career devoted to making subway cars. Unfortunately, what is true of the rail equipment industries also holds for so many industries that were shipped abroad during the second half of the twentieth century.

A great part of U.S. industry has been infected by the Pentagon's cost-maximizing style—rendering it unable to compete in civilian economy. If these firms and institutions are to ever efficiently produce life-serving goods, it will be necessary to carry out economic-technical and political transformations. On the economic-technical side this will require retraining the people working in military industry to be competent in civilian tasks.

The issues of retraining and reorganization were addressed during the 20th century by the *economic conversion movement*. Legislation was proposed in the Congress to promote highly decentralized retraining of blue and white-collar military industry workers. This legislation sought to ensure these workers' livelihoods outside the military enterprise and thereby negate one of the strongest elements of resistance to moving into a demilitarized economy. In the present day, similar retraining is required in order to execute the proposed renewal of U.S. infrastructure as outlined in Chapter 4.

We have available to us a considerable literature that was generated from 1980 to 2000, dealing with methods and requirements for economic conversion of industry and government from military to civilian competence. A selected list of books and articles on economic conversion has been collected for your use in Appendix D, below.

No American government since World War II has even considered converting from a military to civilian economy. Under the second Bush administration—with its accelerated warmaking operations*—the economic and human costs of the permanent war economy have become highly visible. However, the awful list of tragedies noted here is but a taste of what is to come if the U.S. government is allowed to continue consuming the lion's share of the public's resources in its drive for world hegemony.

HUMAN COSTS OF BUSH'S WAR ECONOMY

During President George W. Bush's first term in office, his administration has been degrading the quality of working life for average Americans.

- He attempted to roll back the 40-hour workweek and overtime pay protections. The proposed changes would strip 8 million workers of the right to overtime pay.⁶ Without these protections it is back to the 19th Century workweek.
- Bush has proposed a “guest worker” program that will make it easier for U.S. companies to import foreign workers and pay the “guest worker” a minimum wage of \$5.15 per hour. A flood of impoverished peasants would then disable efforts of U.S. unions to enforce a living wage.

* The Bush administration has been aggressively developing new and ever-more-costly weapons systems. Starting in 2004 the Bush anti-missile system will cost \$10 billion a year for the next five years and unknown hundreds of billions to install a full system – with components in Alaska, Japan, Australia, California, Colorado, Greenland and England. All this will ensure promising cash flows for Boeing, Bechtel and Raytheon. Never mind that “It's totally useless” and unlikely to “work against ICBMs from anyone who has it in for the United States”. That judgment from Dr. Richard L. Garwin, a physicist who has advised the government on security matters for 50 years. (New York Times, May 4, 2004.)

- Bush repealed OSHA (Occupational Safety and Health Administration) ergonomics standards that required adjustments to work stations if their use resulted in carpal tunnel syndrome, tendonitis or other repetitive motion injuries.⁷
- 3 million more Americans fell into poverty, increasing the total number to 34.6 million, or 12.1 percent of the population.⁸
- In 2001 the top fifth of U.S. households received 50.1 percent of the nation's income. In other words, in 2001, for the first time in U.S. history, the top fifth received more than the rest of the population combined.⁹
- In 2002, 12.5 percent of all people in the U.S. experienced "food insecurity". Some 3.4 percent experienced more severe hunger.¹⁰ During 2002 requests for emergency food assistance in U.S. cities doubled. About one in six of these food requests went unmet.¹¹
- Squandered the \$127 billion federal surplus and is now growing the deficit. – The projected deficit for 2004 is \$477 billion, and this is after surpluses from Social Security and the Post Office have been used to reduce it. The real "On-Budget" deficit is at least \$631 billion.¹² At this writing the President has called for an additional \$25 billion for the armed forces in Iraq.
- The League of Conservation voters have given Bush a grade of F.¹³ The following items show why:
 - Environmental Protection Agency Funding Cut by \$500 million in 2004 – Investments in water quality protection would be slashed by 32%.
 - The "Clear Skies" Initiative undercuts Clean Air restrictions on toxins such as mercury and nitrogen oxides, and increases sulfur emissions by as much as 50 percent. Increases in pollution allowed by "Clear Skies" will cause approximately 12,000 more premature deaths every year during 2008 to 2018.
 - Weakening the Clean Air Act allowed 17,000 power plants to use their dirtiest years from the past decade as the "baseline" against which pollution increases are measured.
 - In March 2001, Bush's EPA decided to delay implementing stricter regulations (proposed under Clinton) on the amount of arsenic allowed in drinking water. After public outcry, the stricter standard was implemented.

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The evils documented above are only a foretaste of what is to come if the war economy is sustained. A fuller understanding is obtained by examining the experience of the Soviet Union, where the permanent war economy took a significant toll on the population and finally caused the collapse of Soviet government and economy. An incisive summary view of the economic costs in Soviet society is given in S. Melman, *After Capitalism*, Chapter 6, which

discusses the details of “The National Production Collapse” of the Soviet Union as a consequence of the military priority and overkill without limit. Of great importance was the resistance of top Soviet political and industrial managers to consider economic conversion planning. The terrible consequences of Soviet refusal to consider economic conversion can be seen in present day Russia.

THE SOVIET EXAMPLE: AN EARLY WARNING

Residents of the United States are in the fortunate position of having a measure of “early warning” of the environmental consequences of operating with large priority given to the war economy. That warning comes from news of the environmental disasters created by the Soviet Union’s military enterprise. A formidable account of these horrors is given by Dr. Ruben A. Mnatsakanian, Professor and Chair of the Environmental Science Department at Central European University.¹⁴ His book, *Environmental Legacy Of The Former Soviet Republics*, is a shattering portrait of environmental destruction.¹⁵

In the East Siberia Region of Russia there is a vast area that includes Lake Baikal, a treasure which is about 650 km long and has a maximum depth of 1,620 meters. Lake Baikal “contains 20 percent of all stored fresh water on earth”. A variety of industrial and urban pollution sources have contributed to the degradation of the lake, though the main culprit is a paper mill that was originally created to provide high quality cellulose for making jet fighter tires, (before synthetic processes were available). The region includes “Norilsk, the largest town north of the Polar Circle in the world, also an indisputable champion of air pollution in the USSR ... Norilsk region has enormous deposits of various ores – nickel, 33 percent of estimated world reserves, copper (42.5 %), platinum metals (around 90%) etc. The city and its plants and factories were built in permafrost in terrible conditions with hands of prisoners in Stalin’s times, (1940s-1950s) with immense loss of human lives ... a catastrophic situation with water [and] air pollution is in the Norilsk region ... forest degradation due to industrial pollution on a scale unprecedented even in the USSR (and, probably, in the world) is taking place around Norilsk ...”¹⁶

The extent of environmental destruction in Russia is also illuminated by a recent paper by Rashid Alimov writing for *The Environmental Foundation Bellona*. One paper titled “Radioactive Waste Threatens Moscow” describes current efforts to clean up the “several dozen radioactive waste sites ... scattered within Moscow’s borders.” In many cases these waste sites were created outside the city limits during the 1940s and 1960s. Later on, the city boundaries were expanded and these waste sites were engulfed in the process, many of them becoming sites for expanding city housing.¹⁷ Another report details the Nuclear Reactors Institute’s plans to dump radioactive waste two kilometers from the city of Dimitrovgrad’s water wells.¹⁸ On August 10, 2004 *The New York Times* reported on the legacy of Soviet nuclear industry that was left to contaminate Moscow’s expanding housing areas. “The program of creating the nuclear bomb, the atom bomb, started in Moscow.” By 2004 the Russian Radon agency was left to locate and retrieve more than 1200 “orphaned sources” of radiation-emitting waste from the array of institutes and factories that had been part of the Soviet nuclear industry. As Moscow grew, its outskirts were “sending down roots into illicit radioactive dumps... Eventually housing and offices were started in these areas.”

MOVING TOWARD A PRODUCTIVE ECONOMY: AN ASSEMBLY FOR REINDUSTRIALIZATION OF THE U.S.

The reindustrialization of the United States, making use of infrastructure rebuilding as a cutting edge, is a prospect that is within reach if Americans decide to put aside the world hegemony ambitions of America's state capitalist managers.

How could we encourage and facilitate a reindustrialization process? The following actions would trigger further necessary steps.

Starting with the Civil Engineers' estimates of required investments in each infrastructure function, let us convene an Assembly of: engineers from the whole spectrum of technical societies; trade union officers; industrial economists; and education specialists. This Assembly should produce a first assessment of the resources required for fleshing out the Civil Engineer's 2003 estimates and indicators of early steps that can be taken to marshal essential people across the U.S. for this project. At the same time this early Assembly could commission an assessment of the shortfalls in occupations that are required for the reindustrialization process.

Further definitions of next steps with national, regional, and local assemblies can follow from the initial efforts to assess needs, available and required resources. [Editor's note: The aftermath of Hurricane Katrina in 2005 has spurred many efforts, both to assess the dismal state of American infrastructure and to call for widespread reconstruction.] At this writing there is no need for attempting detailed definition of further steps which would best grow out of the conclusions from the first Reindustrialization meeting – as defined here.

A many-sided effort to reindustrialize the U.S. can proceed with the confidence that an accumulation of productive successes will open up new prospects for our working lives. Instead of producing dead-end materials and machines on Pentagon order, we can create a flow of useful, life-serving goods. The very efforts to achieve such results will transform the lives of all of us who participate.

¹ U.S. Department of Housing and Urban Development, *American Housing Survey*, 1998, Washington, D.C. ; AFL-CIO Housing Investment Trust, *Annual Reports*, 1993-1996, Washington, D.C.; *New York Times*, Apr. 28, 1998; For Method that produced \$369 billion estimated cost for severely depleted U.S. housing, see Seymour Melman, *After Capitalism* (Alfred A. Knopf, 2001) p. 150.

² John E. Ullmann, "Rail Passenger Woes: 'No Policy' As Policy", *Journal of Transportation Law, Logistics and Policy*, Summer 2003, V. 70 #4. pp. 442-459.

³ It is not my purpose to argue the preference among the four simulations whose results Dr. Bischak has presented. I do see it as my responsibility to call attention to the maximum possible job gain that can calculably result from implementing the Civil Engineers' program. I believe that this largest employment addition should be debated in terms of the alternative scenarios that Bischak has presented. There is no magic wand or single universally desirable alternative among the possibilities he has sketched out.

⁴ *New York Times*, June 23, 2004.

⁵ *Special Calculation* by Dr. Greg Bischak, Senior Economist, Appalachian Regional Commission.

⁶ Economic Policy Institute, "Overtime Rights in Peril": www.epinet.org/content.cfm/overtime_2003.

⁷ "Bush signs repeal of workplace safety rules", *USA Today*, Mar. 21, 2001.

⁸ Center For Budget and Policy Priorities, "Poverty Increases And Median Income Declines For Second Consecutive Year", Sept. 29, 2003: www.cbpp.org/9-26-03pov.htm; and U.S. Census, *Poverty in the United States: 2002*, Sept., 2003.

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- ⁹ U.S. Census, *Historical Income Tables – Households*, Sept. 2002, Table H-2:
www.census.gov/hhes/income/histinc/h02.html
- ¹⁰ U.S. Department of Agriculture, *Household Food Security in the United States, 2002*, October 2003, Table 1, p 7.
- ¹¹ U.S. Conference of Mayors, *A Status Report on Hunger and Homelessness in America's Cities, 2002*
- ¹² Congressional Budget Office, "The Budget and Economic Outlook: Fiscal Years 2005 to 2014", Jan. 2004, Summary Table 1, p. xii.
- ¹³ League of Conservation Voters, "2003 Presidential Report Card", Jan. 2003: www.lcv.org.
- ¹⁴ Dr. Mnatsakanian is also author of "Nature Protection in Russia, From Gorbachev to Putin" (440 p., in Russian)
Full text download available at: www.wwf.ru/resources/publ/book/73/
- ¹⁵ Dr. Ruben A. Mnatsakanian, *Environmental Legacy Of The Former Soviet Republics*, (Centre for Human Ecology, Edinburgh: Scotland, 1992) .
- ¹⁶ Ibid., pp. 175-182.
- ¹⁷ Rashid Alimov, "Radioactive Waste Threatens Moscow", *Bellona*, June 18, 2003:
www.bellona.no/en/international/russia/waste-mngment/30049.html
- ¹⁸ Rashid Alimov, "Radioactive waste to be dumped near Dimitrovgrad's water wells", *Bellona*, Nov. 6, 2002:
www.bellona.no/en/international/russia/waste-mngment/27015.html