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1NC Brain Drain 1/

A. Uniqueness - Israel reversing scientific brain drain now

Jeffay, The Forward Israel Correspondent, ‘10

(Nathan, September 16 2010, The Jewish Chronicle Online, “Israel fights to stop science brain drain” <http://www.thejc.com/news/world-news/38222/israel-fights-stop-science-brain-drain> 7/8/11 BLG)

Israel has begun to implement a £250 million plan to win its best and brightest scientists back from abroad and slow its "brain drain". A decade after the state slashed funding for university research, new posts for young academics are few and far between. The result is that most are going abroad to find a "post doctoral" research position - and increasingly they are staying abroad. This has caused alarm across the political spectrum. A year ago, in a well-received speech in the Knesset, President Shimon Peres declared: "We cannot accept the brain drain from this country, and we must and can ensure the return of brains to Israel." Over the past few years, the government has offered various financial benefits and tax breaks to Israelis abroad in order to tempt them home, with some success. But this March, the government decided to focus particularly on its academics by establishing Centres of Research Excellence, four of which are due to open this coming January and up to 26 more within five years. These bodies are meant to boost research in science by giving grants to researchers and universities proposing innovative projects. But the declared aims of the project specifically include reversing the brain drain.

B. Links

1. Shortage of qualified American aerospace engineers means space exploration & development results in hiring foreign nationals

Amateur Rocketry Society Of America 3 “Homeland Security Act Hurts Aerospace/Defense Industry”, March 22, Amateur Rocketry Society

Of America On Line News Letter, <http://www.space-rockets.com/arsanews.html>) access 7/9/11

American aerospace companies use foreign engineers and technicians due to a shortage of American aerospace engineers and technicians. Since the cutback of NASA's space program and the reduction of defense strategic missile R & D, engineering students have gone into more promising industries such as software and electronics. A recent US Air Force Space Command briefing on the development of a Spaceplane seriously questioned whether the United States had the quality and number of aerospace engineers and technicians to develop this new vehicle.

C. Impact

1. Israel must pursue new space technologies to strengthen strategic defense and increase economic growth—they cannot have people leaving

Ben-Israel, Chair Israel Space Agency and Kaplan, Director Israel Space Agency, 8 (Professor M.K. Isaac and Dr. Zvi, “Out of This World: Israel’s Space Program”, p. 99, <http://www.mfa.gov.il/NR/rdonlyres/A7C494F2-62C2-44BC-8FA1-148D776A67DA/0/ch76.pdf>, accessed 7/7/11 BLG)

The debut of “Ofek-1” the first Israeli satellite on September 19, 1988, is a landmark for the beginning of the Israeli “Space Age.” This happened approximately 30 years after the beginning of the world’s Space Age – the launch of Sputnik 1. Nevertheless, a posteriori, the Israeli Space Program was viewed as a tremendous success. A small country joined the exclusive club of seven space “superpowers.” Israel was skilled enough to achieve a status of a world leader in the important niche of small but highly sophisticated space platforms, exhibiting outstanding performances. At present, the State of Israel is standing at a watershed. In order to leverage the already acquired achievements, it should be pursuing space technologies and space systems to further improve its position in three important dimensions: Strengthening its strategic defense status, elevating the level of excellence of its society and increasing its economical growth. Historical Notes: Israel’s space program began with university-based research in the early 1960s. The Israel Academy of Sciences and Humanities formally established the National Committee for Space Research in 1963. The growth, in scope and depth, of related research activities led to the creation of a strong academic community that fostered a new generation of scientists and engineers

1NC Brain Drain 2/

2. Lack of Israeli Military Readiness and economy leads to nuclear war

Moore 9, Libertarians for Peace, Leader ‘09

(Carol, December, “ISRAELI NUCLEAR THREATS AND BLACKMAIL” <http://www.carolmoore.net/nuclearwar/israelithreats.html> 7/10/11 BLG)

Not surprisingly, no nation state has attempted to attack Israel since 1973. A former Israeli official justified Israel’s threats. “You Americans screwed us” in not supporting Israel in its 1956 war with Egypt. “We can still remember the smell of Auschwitz and Treblinka. Next time we’ll take all of you with us.”[14] General Moshe Dayan, a leading promoter of Israel’s nuclear program[15], has been quoted as saying “Israel must be like a mad dog, too dangerous to bother.”[16] Amos Rubin, an economic adviser to former Prime Minister Yitzhak Shamir, said "If left to its own Israel will have no choice but to fall back on a riskier defense which will endanger itself and the world at large... To enable Israel to abstain from dependence on nuclear arms calls for $2 to 3 billion per year in U.S. aid."[17] In 1977, after a right-wing coalition under Menachen Begin took power, the Israelis began to use the Samson Option not just to deter attack but to allow Israel to “redraw the political map of the Middle East” by expanding hundreds of thousands of Israeli settlers into the West Bank and Gaza.[18] Then-Minister of Defense Ariel Sharon said things like "We are much more important than (Americans) think. We can take the middle east with us whenever we go"[19] and "Arabs may have the oil, but we have the matches."[20] He proclaimed his - and many Likud Party members' - goals of transforming Jordan into a Palestinian state and “transferring” all Palestinian refugees there.[21][22] A practice known worldwide as "ethnic cleansing." To dissuade the Soviet Union from interfering with its plans, Prime Minister Begin immediately “gave orders to target more Soviet cities” for potential nuclear attack. Its American spy Jonathan Pollard was caught stealing such nuclear targeting information from the U.S. military in 1985.[23] During the next 25 years Israel became more militarily adventurous, bombing Iraq’s under-construction Osirak nuclear reactor in 1981, invading Lebanon to destroy Palestinian refugee camps in 1982 and to fight Hezbollah in 2006, massively bombing civilian targets in the West Bank Jenin refugee camp in 2002 and thoughout Gaza in 2008-2009. There are conflicting reports about whether Israel went on nuclear alert and armed missiles with nuclear weapons during the 1991 Gulf War after Iraq shot conventionally armed scud missiles into it.[24][25] In 2002, while the United States was building for the 2003 invasion of Iraq, then Prime Minister Ariel Sharon threatened that if Israel was attacked “Israel will react. Is it clear?”[26] Israeli defense analyst Zeev Schiff explained: “Israel could respond with a nuclear retaliation that would eradicate Iraq as a country.” It is believed President Bush gave Sharon the green-light to attack Baghdad in retaliation, including with nuclear weapons, but only if attacks came before the American military invasion.[27] Former Israeli Foreign Minister Shimon Peres has admitted that nuclear weapons are used by Israel for “ompellent purposes” - i.e., forcing others to accept Israeli political demands.[28] In 1998 Peres was quoted as saying, "We have built a nuclear option, not in order to have a Hiroshima, but to have an Oslo," referring to imposing a settlement on the Palestinians.[29] In her book Israel’s Sacred Terrorism Livia Rokach documented how Israelis have used religion to justify paramilitary and state terrorism to create and maintain a Jewish State.[30] Two other Israeli retaliation strategies are the popularized phrase “Wrath of God,” the alleged Israeli assassination of those it held responsible for the 1972 killings of Israeli athletes during the Munich Olympics[31], and the “Dahiya doctrine” of destruction of civilian areas to punish Palestinians for supporting their leaders.[32] Israeli Israel Shahak wrote in 1997: "Israel clearly prepares itself to seek overtly a hegemony over the entire Middle East...without hesitating to use for the purpose all means available, including nuclear ones."[33] Zeev Schiff opined in 1998 that "Off-the-cuff Israeli nuclear threats have become a problem."[34] In 2003 David Hirst noted that “The threatening of wild, irrational violence, in response to political pressure, has been an Israeli impulse from the very earliest days” and called Israel a candidate for “the role of 'nuclear-crazy' state.”[35] Noam Chomsky said of the Samson Option “the craziness of the state is not because the people are insane. Once you pick a policy of choosing expansion over security, that's what you end up getting stuck with.”[36] Efraim Karsh calls the Samson Option the “rationality of pretended irrationality,” but warns that seeming too irrational could encourage other nations to attack Israel in their own defense.[37]

\*\*Uniqueness\*\*

Uniqueness – NASA Hiring Declining

Declining NASA budgets and projects resulting in downturn in aerospace industry and hiring SQ

Aerospace Industries Association 11

(“NASA: A Sound Investment for our Nation’s Future”,

<http://www.aia-aerospace.org/assets/NASA%20FY12%20Funding%20White%20Paper%20FINAL.pdf>) access 7/9/11

AIA was disappointed that the Presidents FY2012 budget proposal was less than the S19.5 billion provided for in the NASA Authorization Act of 2010. However, given the current fiscal environment, the level of funding proposed for NASA provides the stability" needed to begin program execution. Implementation of critical capabilities such as the new heavy-lift launch vehicle, development of the multi-purpose crew vehicle, continued investment in commercial cargo and crew capabilities to service the International Space Station, and important research in science, technology and aeronautics all require a steady and predictable funding stream. Despite the direction provided in the NASA Authorization Act of 2010, uncertainty still remains. The budget uncertainties that surrounded the FY2011 budget, coupled with the planned retirement of the Space Shuttle, are causing residual impacts to the space industrial base and highly-trained space workforce in both private and public sectors. The aerospace workforce is a perishable national treasure. Experienced aerospace talent, once lost, may be unrecoverable; new workers without this critical experience may take years to train.

US aerospace industry declining now – critical worker shortage

Aerospace Industries Association 8

(“Launching into Aerospace: Industry’s Response to the Workforce Challenge”,p.2, <http://www.aia-aerospace.org/assets/workforce_report_1_sept08.pdf>) access 7/8/11

At the core of the industry’s success are highly qualified men and women who every day make history and blaze new technological trails. Yet, while this great work is ongoing, the U.S. aerospace industry and its workforce face alarming trends.

The need for aerospace professionals is great and will continue to grow for the foreseeable future.

America’s failure to produce enough qualified aerospace professionals will jeopardize the ability of the United States to be the world’s leader in innovation, eventually endangering the nation’s security. The aerospace community risks the loss of intellectual capital and will be unable to meet the forecasted needs for business.

America’s requirement for workers who are well educated in science, technology, engineering and mathematics (STEM) is falling far short of anticipated need. Trends are discouraging, and interest is lacking among American youth. We simply aren’t producing enough engineers and non-engineering technical workers, such as hands-on manufacturing labor. Without dramatic change, these needs will go unmet, the future of the American aerospace industry will be bleak and the consequences for the nation will be extreme.

Uniqueness – NASA Budget Cuts 1/2

More NASA cuts are coming within the next year

Wasson, Staff Writer at The Hill, 7-6-11

(Erik, The Hill Political Blog: “Appropriators eye local law enforcement, NASA funding”, <http://thehill.com/blogs/on-the-money/appropriations/169805-appropriators-eye-local-law-enforcement-nasa-funding> MLF 7-6-11)

House appropriators on Wednesday revealed that they are targeting local law enforcement grants and activities in outer space for deep cuts next year.

The Appropriations Committee unveiled its 2102 Commerce, Justice, Science Appropriations bill ahead of a subcommittee markup on Thursday. The House is proceeding with the appropriations process even though Congress and the White House have yet to agree on an overall 2012 spending level.

The bill provides $50.2 billion in funding, a cut of $3.1 billion below current levels and $7.4 billion below President Obama’s budget request. The bill’s funding is below 2008 spending levels.

The bill slashes Justice Department grants to states and cities by $1.1 billion below last year’s level and $1.3 billion below the Obama request. NASA's budget is cut by $1.6 billion, or $1.9 billion below the request. The end of the Space Shuttle accounts for $1 billion in savings, and appropriators have decided to kill the James Webb Space Telescope.

Congress will continue to cut NASA funding

Waaytv.com, ABC News Station 7-2-11

(Waaytv.com, ABC News Station in Alabama: “Mo Brooks Speaks Out on NASA's Future” 7-2-2011 <http://www.waaytv.com/news/local/story/Mo-Brooks-Speaks-Out-on-NASAs-Future/PORBYr2X20Cir6WXMTSEXA.cspx> MLF 7-6-11)

Huntsville, AL - North Alabama's representative to Washington is speaking out about two key issues this weekend. As the final shuttle launch looms, Brooks says that he is unhappy with the direction NASA is headed. Brooks says that he, along with the other members of the Alabama delegation, are fighting to keep funding in place, but Brooks claims they're up against a major obstacle. "We've got a White House that we're having to combat," Brooks told WAAY 31." We had to combat them with Constellation, when the President canceled Constellation last year, Congress is having to battle the White House now with the $1.8 billion that we earmarked for heavy lift vehicle. A lot of that work would have been done at Huntsville's Marshall Space Flight Center."

NASA Administrator Charles Bolden also took some of the blame in Brooks' eyes. The freshman Republican says that Bolden's plan to get more private ventures involved in space flight is noble, but NASA needs to lead the way. "Manned space flight is not a profit venture. We need to have NASA in the lead and we need to utilize the brain power here at the Mrshall Space Flight Center that has served us so well for five decades."

Brooks is also apprehensive about the looming budget showdown in Washington. The prospect of raising the debt ceiling does not sit well with him. "America faces twin economic threats. On the short term, we've got the unsustainable budget deficits that have resulted in the demand to raise the debt ceiling in the tune of 2, 2 and a half trillion dollars, somewhere in that ball park... Long term, however, if we continue to raise the debt ceiling, then we've got the issue of whether we can avoid a federal government bankruptcy."

Uniqueness – NASA Budget Cuts 2/2

NASA cuts have already started with the cancellation of Constellation and will continue with a reduction of employees at the Kennedy Space Center

Space Report 11

(The Space Report, definitive overview of major global space developments over the past year: “4.0 Workforce and Education” 2011 <http://www.thespacereport.org/files/The_Space_Report_2011_exec_summary.pdf> MLF 7-6-11)

Despite the recession, U.S. core space employment remained relatively stable at about 260,000 workers in 2009, the latest year for which data was available. Average U.S. space industry wages continue to be more than double the average U.S. private sector wage, suggesting that the demand for skilled employees remains high. It remains to be seen how these figures will be affected by the end of the Space Shuttle Program and the termination of the Constellation Program, which have resulted in the loss of more than 2,700 space jobs between October 2008 and March 2010. Further cutbacks are expected, such as the reduction of the Kennedy Space Center contractor workforce from 15,000 employees in 2009 to approximately 7,000 by the time the shuttle ceases operations. Various retraining programs have been set up to ease the transition of these workers into other jobs, and it is also hoped that commercial operators will create jobs as they seek to provide NASA with crew and cargo services. In the U.S. military space workforce, the number of space professionals declined by 6%, from 16,830 in 2008 to 15,791 in 2009.

Uniqueness – Retirement

The Aerospace Industries Association is lacking young innovative scientists to replace the retiring baby boomers

Bates and Holmes Associate Editors at Access Intelligence 11 (Jason and Mark, Satellite Today, “Space Workforce: Attracting the Next Generation”, 7/1/11, <http://www.satellitetoday.com/via/features/Space-WorkforceAttracting-the-Next-Generation_34429.html>, accessed 7/6/11, CW)

Concerns over the aging workforce is the number two issue for members of the Aerospace Industries Association (AIA), whose members includes U.S. manufacturers and suppliers of aircraft, space systems, equipment, services and information technology, says Daphne Dador, AIA’s manager, workforce. “A lot of our leaders and companies are really focused on developing a qualified workforce for the future. As it stands now, there are certainly challenges for our workforce.” Among them is that 38 percent of the U.S. aerospace workforce is 50 or older, with 20 percent of the workforce forecasted to reach retirement age in the next three to five years. “When it comes to pending retirements and the supply side, getting young people to work in this industry is a concern,” she says. Before the House Science and Technology Subcommittee on Research and Science Education in February, Rick Stephens, senior vice president of human resources and administration at Boeing and chair of the AIA Workforce Steering Committee, said the United States is “falling further behind” in science and engineering education. “These are becoming difficult jobs to fill, not because there is a labor shortage but because there is a skills shortage. Our industry needs more innovative young scientists, technologists, engineers and mathematicians to replace baby boomers as they retire.

Domestic aerospace labor force headed for retirement

Aerospace Industries Association 8

“A Special Report: Launching the 21st Century: American Aerospace Workforce”, December,

<http://www.aia-aerospace.org/assets/report_workforce_1208.pdf>) access 7/8/11

• Aging Science and Engineering Workforce. Retirements from the STEM labor force are likely to become more significant over the next decade. Twenty-six percent of all STEM degree holders in the labor force are age 50 or older. Among STEM doctorate holders in the labor force, 40 percent are age 50 or older.4

According to the National Science Board’s Science and Engineering Indicators, by age 62 half of STEM bachelor’s degree holders had left full-time employment. Doctoral degree holders work slightly longer with half leaving full-time employment by age 66.

Set to lose up to half the workforce in the next few years

American Institute of Aeronautics and Astronautics Professional Member Education Committee 9

(“Recruiting, retaining, and developing a world-class Aerospace workforce: An AIAA Information Paper”,

<https://info.aiaa.org/SC/PMEC/Lists/Training%20and%20Workforce%20Development%20Information/Attachments/1/Retaining%20Aero%20Workforce%20031309%20v02.pdf>) access 7/9/11

Aerospace represents about $200 billion (or 1.5%) of the domestic economy and in 1997 provided a $56 billion positive trade balance. The aerospace workforce is the foundation of the industry’s success, yet unique workforce demographics present challenges. Figure 11 shows the age distribution of the aerospace business workforce compared to the total U.S. workforce. Up to half of the current aerospace workforce will be eligible for retirement within five years. Aerospace workforce composition does not match national demographic averages. Compared to the total US workforce, the aerospace industry and NASA have a disproportionately large percentage of workers aged 40- 55, and a disproportionately small percentage of workers younger than 40. Student loans, research dollars to support universities, and service scholarships can provide incentives for younger workers to consider aerospace and join the industry.

Uniqueness – Retirement

**The aerospace industry is aging. Young workers are needed to maintain leadership.**

President’s High Growth Job Training Initiative in the Aerospace Industry ‘05

(May 2005, America’s Aerospace Industry: Identifying and Addressing Workforce Challenges “Report of Findings and Recommendations For The President’s High Growth Job Training Initiative in the Aerospace Industry” <http://www.doleta.gov/brg/indprof/aerospace_report.pdf> 7/6/11 BLG)

The Aging Workforce—Stakeholders representing the aerospace industry expressed concern about the aging workforce. About 26 percent of aerospace workers will be eligible to retire by 2008. The average production worker is 53 years of age3 and the average engineer is 54 years of age.4Participants wanted to establish an annually updated national database of skills/competency gaps focusing on training program money on 1 year and 5 year gaps (projected) identified by centers, companies and agencies and managed by them; establish the relevance of the aerospace industry in education and the workforce; and establish a phased retirement program. The Loss of Technical Talent—The industry is having a difficult time retaining its existing workforce, attracting young people into the field and building its skills base. Some solutions examined include sponsoring a meeting with industry partners and educators where future specific skill sets are identified, and educators transfer these skill sets into new curricula and courses; increasing hands-on interactive learning in the classrooms, including increasing technology access, teachers with experience, gearing classes toward specific interests and teaching what industry needs; and identifying high-tech skills, including identifying and training vital skills sets as defined by industry, certifying skill sets to standards after hands on training, rewarding training with pay and creating baseline core competencies and technical skills levels.

The aerospace workforce is essential to its success- the workforce is disproportionately old.

American Institute of Aeronautics and Astronautics (AIAA) ‘10

(No author, 2010, American Institute of Aeronautics and Astronautics (AIAA) “Recruiting, Retaining, and Developing a World‐Class Aerospace Workforce: An AIAA Information Paper “http://pdf.aiaa.org/downloads/publicpolicypositionpapers//Aero\_Workforce\_Information\_Paper\_030910.pdf 7/6/11 BLG)

Aerospace represents about $200 billion (or 1.5%) of the domestic economy and in 1997 provided a $56 billion positive trade balance. The aerospace workforce is the foundation of the industry’s success, yet unique workforce demographics present challenges. Figure 11 shows the age distribution of the aerospace business workforce compared to the total U.S. workforce. Up to half of the current aerospace workforce will be eligible for retirement within five years. Aerospace workforce composition does not match national demographic averages. Compared to the total US workforce, the aerospace industry and NASA have a disproportionately large percentage of workers aged 40- 55, and a disproportionately small percentage of workers younger than 40. Student loans, research dollars to support universities, and service scholarships can provide incentives for younger workers to consider aerospace and join the industry. If talented young engineers are not recruited, retained, and developed to replace the workforce generation that is near retirement, then the U.S. stands to lose the valuable economic and critical national security benefits of the domestic aerospace industry. As shown in Figure 22, large percentages of engineers are working outside the science and engineering professions. Engineering students burdened with college loans are seeking greener pastures. As shown in Figure 33, aerospace engineering salaries are low compared to other industries. If the U.S. is to retain its edge in this industry, salaries need to rise and incentives given for entering the industry.

Uniqueness – Jobs Low Now

NASA trying to avoid brain drain now

Thirdage.com 11

(Thirdage.com is a leading life-stage media marketing and consumer insight company: “NASA Faces "Brain Drain" After Final Shuttle Flight” 7-3-2011 <http://www.thirdage.com/news/nasa-faces-brain-drain-after-last-shuttle-flight_07-03-2011> MLF 7-5-11)

NASA faces fears of a "brain drain" as its shuttle program ends. Experts call the idea of a talent drain the "Team B" effect. "The good guys see the end coming and leave," Albert D. Wheelon, a former aerospace executive and a Central Intelligence Agency official told the New York Times. "You're left with the B students." NASA is seemingly aware of the effect: they've added retention bonuses for skilled employees, perks like travel benefits and more safety drills. But they must face the music: through a variety of cuts in recent years, the shuttle work force has decline to 7,000 works from about 17,000. "The downsizing has been well managed and has achieved an acceptable level of risk," Joseph W. Dyer, a retired Navy vice admiral and the chairman of NASA's Aerospace Safety Advisory Panel told the Times. "NASA and its industry partners did a genuinely excellent job" in planning for the shuttle's retirement, he said. But, he continued: "There's added risk anytime you downsize." The coming flight of Atlantis will be the agency's 135th and final launching of a shuttle. After that, NASA will be left without much in the way of goals: Constellation, a program that would have sent Americans back to the moon, has been scrapped, and astronauts have been steadily leaving the agency. Several experts have cited the Team B effect as the cause of multiple disasters in NASA's programs throughout the mid 1980s and late 1990s: over dozen rockets were destroyed, billions of dollars of satellites were wrecked, and two catastrophic failures in the shuttle program, in 1986 and 2003, resulted in the deaths of 14 astronauts. Experts point more to design flaws and management failures than with a dearth of qualified individuals. NASA's Aerospace Safety Advisory Panel warned of the effects of aimlessness should the agency lose its way: in January, the Panel's annual report warned that "the lack of a defined mission can negatively affect work force morale" and said that the loss of big missions might have "increased the potential for risk," undermining "the ability to attract and maintain the necessary skill sets needed for this high-technology venture."

**There is an engineering shortage now.**

McAward, Kelly Engineering Resources, Vice President and Product Leader ‘10

(Tim, September 1 2010, Kelly Engineering Resources, Vice President and Product Leader Aerospace Engineering Online “The Future of Engineering is Here” <http://www.sae.org/mags/aem/8789> 7/6/11 BLG)

Quite simply, in comparison to lifetime earning potential, few career paths come close to engineering, as engineers are among the highest paid professionals in the world, year after year. However, according to the 2009 U.S. Bureau of Labor Statistics data, there were only 1.6 million engineers working in the U.S. last year, accounting for a shockingly low 1.3% of the nation’s total workforce. As engineering talent shortages continue throughout the globe, while demand remains exceedingly high, there has rarely been a more opportune time for college students and recent graduates to obtain highly meaningful and rewarding engineering positions than now. So, how will you react to the opportunities that are currently available for you? What will you do today, tomorrow, and well into the future to positively impact the industry as a whole? Finally, what can you do to ensure the future of engineering is bright for upcoming generations? At the same time, as you prepare for your future within the field, what trends should you look for? What can you do today to achieve success tomorrow? By considering the following three recent engineering trends, you can adapt to various changes within the field and accomplish your career goals.

\*\*Links\*\*

Link – Recruit Overseas 1/2

Previous layoffs make it difficult to hire domestic workers –solution is to recruit overseas

Dinerman space investigative writer 9

(Taylor, thespacereview.com, “Protecting the Space Workforce”, 8/31/9, <http://www.thespacereview.com/article/1455/1>, accessed 7/6/11, CW)

Every major downturn in the space industry, most memorably those of the 1970s and of the early 1990s, has resulted in pain for the industry and a disaster for the workforce. In the 1970s not only did the industry lose most of the huge intellectual and monetary investment in had made in the Apollo program, it also lost the trust and goodwill that made the Moon mission such a remarkable success. Never again would people be able to go to work on a space project with the certain knowledge that their government would allow them to finish the job. The layoffs at NASA and at the contractors in the 1970s threw away a generation’s worth of highly qualified men and women. The history of the shuttle’s development on a shoestring budget throughout this period is an example of the way NASA tried and failed to keep the Apollo mystique alive in spite of the budget cuts. The widely believed claim from that time was that they were building the “DC-3 of Space”. Instead of confronting the politicians and the public with the truth—that the Shuttle was a delicate and limited space vehicle—the space agency’s leaders dazzled everyone with the idea that cheap and abundant access to space was just around the corner. Meanwhile stories, which may have been apocryphal but were eminently credible, circulated of PhD rocket engineers driving cabs in LA and Florida. The layoffs at NASA and at the contractors threw away a generation’s worth of highly qualified men and women. When in the 1980s they were once again needed to support the Reagan-era buildup, a good proportion of them were unwilling to take the risk of rejoining an industry that served a government customer who had unceremoniously dumped them. The aerospace industry as a whole, and the space industry in particular, were able to get around this problem partly by aggressively recruiting overseas. Even so, many of the 1980s-era space programs suffered from the lack of an experienced workforce. Aside from the Challenger disaster, the best example is the flawed Hubble Space Telescope, which was launched with a defective main mirror.

Link – Recruit Overseas 2/2

American college students are losing interest in aerospace leading the US to look to foreign workers

Wharton Aerospace & Defense Report, 9

(the world’s first collegiate business school and the first business school in the United States, The Wharton School of the University of Pennsylvania, October 2009, <http://executiveeducation.wharton.upenn.edu/wharton-aerospace-defense-report/upload/A%20Shortage%20of%20Engineers%20Threatens%20the%20Industry%20and%20Nation.pdf>, accessed 7/6/11, CW)

That is the crux of the problem. Without a workforce with engineering skills, the U.S. aerospace industry will lose its innovative and productive edge. While the country graduates about 70,000 engineers annually, only a small percentage enters aerospace or the related defense industry. Instead, many enter professions where their engineering degrees are barely relevant -- such as finance, banking and law – often lured by potentially very high salaries. The crisis is exasperated by the rapidly declining number of American college students studying so-called STEM disciplines -- science, technology, engineering and math. And American students at the elementary through high school levels don’t score as high on math and science as those from many developing countries. This combination will reverberate throughout the industry at some point soon. "Unfortunately, we are not in a field that can take young, unqualified people and train them for the job," says Marion Blakey, president and CEO of the Aerospace Industries Association (AIA). Potential workers need to be well trained in engineering fundamentals. "We need that foundation before we can give them the requisite training in the field."

U.S. Interest Is Lagging

Without that training, potential workers will be qualified to land only production jobs in aerospace. The higher paying jobs will go to foreign guest workers, who are graduating with American engineering degrees in growing numbers. According to an AIA study, 60% of engineering PhDs in 2007 went to foreign nationals compared to only 40% in 2003. That source of workers has kept the U.S. aerospace industry humming, but appearances can be deceiving, especially in the defense sector. As more people with security clearances retire, foreign workers will not be permitted to replace them because of national security regulations. By contrast, the National Academy of Sciences noted that India produced about 350,000 engineers in 2004 and China some 600,000. Many are trained in the U.S., still considered home to world’s premier universities. But other countries are beginning to catch up. "You look at PhD. students in technology and the faculty that teaches them at U.S. universities, and you notice that the majority are foreign born," says Morris Cohen, a professor of operations and information management at Wharton. "What is different now is that countries like China and India and other places have developed their own high-level education. We are beginning to compete for the best students." Some of those students remain in the U.S. and take engineering jobs that do not require a security clearance. But a growing number are returning to their native countries with their U.S. university- granted PhD.s to help set up a domestic aerospace industry. China, in particular, has ramped up efforts to create a domestic industry that can expand production of short-to-medium-range, narrow-bodied commercial jets and begin to produce wide-body, long-range jumbo jets by 2020.

Link – Satellites

Retirement means not enough domestic aerospace talent to pursue satellite programs

Blakey, president and chief executive officer of the Aerospace Industries Association 9

(Marion C., “Finding The NexGen Aerospace Workers For The U.S. Satellite Industry”, SatMagazine, May, <http://www.satmagazine.com/cgi-bin/display_article.cgi?number=1220945084>) access 7/9/11

The U.S. satellite industry has a great deal to worry about these days ­— lost opportunities due to outdated export control rules, global competition from more and more countries every day, the various technical challenges of providing new services — but there’s another issue out there affecting the entire aerospace industry that demands attention in the satellite sector — a looming workforce crisis.

The U.S. aerospace industry workforce is currently dominated by aging workers — baby boomers who were enthralled with space travel and answered our nation’s call to win the Space Race and put Americans on the moon. Today, nearly 60 percent of aerospace workers were age 45 or older in 2007, with retirement eligibility either imminent or already reached.

There is a growing need to replace these experienced workers, especially the engineer talent pool, with capable new talent to ensure that the United States continues to be the world’s leader in satellite technology and other important aerospace applications. But there are not sufficient numbers of young people studying Science, Technology, Engineering and Mathematics — the STEM disciplines — that would put them on the path to enter aerospace careers and replace our retiring workers.

Link – Commercial Space Development

Aerospace workforce shortage affects commercial development possibilities

Blakey, president and chief executive officer of the Aerospace Industries Association 9

(Marion C., “Finding The NexGen Aerospace Workers For The U.S. Satellite Industry”, SatMagazine, May, <http://www.satmagazine.com/cgi-bin/display_article.cgi?number=1220945084>) access 7/9/11

There is very strong competition for our nation’s brightest math- and science-oriented students. Aerospace companies are forced to share talent with a variety of high-tech industries that were not even around when baby boomers were selecting their careers. For example, more than half of those who graduate with bachelor’s degrees in engineering go into totally unrelated fields for employment. And the numbers earning advanced degrees in STEM subject areas lag other fields by huge margins.

An estimated 70,000 engineering bachelor’s degrees are awarded in the United States each year, but only 44,000 of those graduates are compatible for aerospace careers when you subtract other engineering disciplines and foreign nationals ineligible for security clearances. About 40 percent of STEM master’s degrees and 50 percent of doctoral degrees go to noncitizens also not eligible for security clearances. Many jobs in the national security and space sections of the industry — a significant portion of overall employment — require the clearances. Even with the economic decline, many aerospace companies are still hiring, especially engineers. So the shortfall is evident.

In addition, our future workforce is not being prepared for STEM careers even before they reach college. Approximately 70 percent of our eighth graders are below “proficient” in mathematics and science and our 15 year olds rank 21st in science and 25th in math when compared to other nations.

The U.S. Labor Department projects 2.5 million STEM-related jobs will be vacant by 2014, a clear disconnect with the amount of available talent as aging workers start to retire at a faster pace. NASA and the Defense Department predict that the shortage could affect national security and limit commercial product development.

Link – Launch Vehicles and Space Travel

Plan requires commercial aerospace expansion – NASA has no in-house launch or transport capabilities

Aerospace Industries Association of America 11

(“Commercial Space: A Public-Private Partnership”, <http://www.aia-aerospace.org/assets/fact_sheet_commercial_space_062411.pdf>) access 7/9/11

With the exception of the government operated but soon to be retired Space Shuttle, the Evolved Expendable Launch Vehicle, and the Russian Soyuz, the U.S. government currently procures all space launch services from U.S. commercial launch providers. NASA, for example, currently purchases all of its orbital satellite launchers from one of three U.S. commercial launch operators.

Outside these government launches, a second form of Commercial Space Transportation is referred to as Commercial Crew and Commercial Cargo. Tins type of commercial space activity is carried out by vehicles owned and operated by private companies for a client, which is often die U.S. Government and is often manifested to the International Space Station.

Link – Remote Sensing

USFG remote sensing conducted via commercial aerospace industry

Aerospace Industries Association of America 11

(“Commercial Space: A Public-Private Partnership”, <http://www.aia-aerospace.org/assets/fact_sheet_commercial_space_062411.pdf>) access 7/9/11

The U.S. commercial remote sensing space industry augments - and in some cases replaces - U.S. Government capabilities and contributes to U.S. military, intelligence, foreign policy, homeland security, and civil objectives, as well as U.S. economic competitiveness. In this form of commercial space activity, the government buys space derived data directly from the commercial provider to meet government mission objectives. In this arrangement, the government saves by using a satellite and ground infrastructure already available and proven, while the commercial data providers enjoy the benefits of a robust anchor customer. This can be a true win-win situation that shares the resources already m space and creates a cost-saving public-private partnership. Continued development and advancement of U.S. commercial remote sensing space capabilities is essential to sustaining the nation's advantage in collecting information from space, and government leasing or buying of commercial capabilities supports the further development of better sensing systems by private and government satellite operators alike.

AT: No Link – Domestic Workforce Solves

Lack of domestic aerospace workers to do the plan

Leon, Senior Project Leader in the Economic and Market Analysis Center and Maloney, Director of the Economic and Market Analysis Center 7

(Michael A. and Patricia A, The State of the National Security Space Workforce, Aerospace Vol 8, # 1, spring, <http://www.aero.org/publications/crosslink/spring2007/01.html>, accessed 7/6/11, CW)

In view of statistics such as these, members of the U.S. government and the aerospace and defense industry have raised concerns about the ability of the space industrial base to execute the portfolio of current and planned space programs. The question that frequently arises is: Are there sufficient programs in place to attract and retain science and engineering talent in the U.S. aerospace and defense industry? The short answer would appear to be, "No." Several interrelated factors are involved in the failure to attract enough new talent to the field—most notably, national educational trends, the industry's need for uncommon technical skills, and competition with other technical fields.

Lack of domestic skilled workers

Aerospace Industries Association 8

“A Special Report: Launching the 21st Century: American Aerospace Workforce”, December,

<http://www.aia-aerospace.org/assets/report_workforce_1208.pdf>) access 7/8/11

• Declining "Homegrown" STEM Workforce. At the same time that retirements are increasing, the number of American workers with STEM degrees is declining. In 2003, 25 percent of all U.S. college educated workers in STEM occupations were foreign born as were 40 percent of doctorate holders in STEM occupations.5 In 2007, 60 percent of engineering Ph.D.s were awarded to foreign nationals.6 According to a recent RAND Corporation report, the inflow of foreign workers has been critical in maintaining the U.S. STEM workforce and the major reason that the nation is currently not in a crisis-state. Due to the national security nature of our industry, however, this report focuses on the need for the United States to continue its efforts to cultivate homegrown talent.

• Propensity toward a STEM Career. For every new Ph.D. in engineering, America graduates one new Ph.D. in physical science, 18 new lawyers and 50 new MBAs.7 More than one-half of those holding bachelor of science degrees in engineering enter careers outside of engineering, including investment banking, law and business.

Recruiting domestic STEM talent depends heavily on student perceptions of the STEM careers that await them. Those perceptions can be solidified early in the educational process — before students graduate from high school. The desirability of a career in STEM is determined largely by the prospect of attractive employment opportunities in the field.

Some aspects of the graduate education and training process can also influence student decisions to enter STEM fields. The “pull factors” include time to degree, availability of fellowships, research assistantships or teaching assistantships and whether a long, post-doctoral appointment is required after completion of the Ph.D.8

AT: No Link – Domestic Workforce Solves

Declining interest in aerospace among US students

Singer, Space News Staff Writer ‘06

(Jeremy, space news staff writer, Space.com, “Air Force, Contractors seek ways to fight brain drain”, 7/17/6, <http://www.space.com/2638-air-force-contractors-seek-ways-fight-brain-drain.html>, accessed 7/3/11 BLG)

One of the most frequently cited problems facing those who build and rely on space systems is a receding pool of engineering talent, a function of declining interest among young people in math and science. It is a troubling trend whose impact will be felt increasingly as the current generation of aerospace engineers retires. This has led the U.S. Air Force and its contractors to pursue a variety of programs designed to get the space bug to bite students of all ages. A number of senior military and NASA officials have expressed frustration in recent years with the difficulty of attracting young people to careers in space. During an April 2002 interview, for example, Air Force Gen. Ralph "Ed" Eberhart, then serving as commander of Air Force Space Command, said he was disappointed to see a decline in the number of students pursuing aeronautical and astronautical degrees. "I've seen a survey that when you ask elementary school students what they are most interested in, you get two subjects: dinosaurs and space," said Eberhart, who retired in 2005. "So someplace between elementary school and degree time, we lose these people."

AT: No Link – Security Restrictions – Apply to Domestic Hires

Security restrictions also block domestic hires

Aerospace Industries Association 8

“A Special Report: Launching the 21st Century: American Aerospace Workforce”, December,

http://www.aia-aerospace.org/assets/report\_workforce\_1208.pdf) access 7/8/11

Regarding the difficulty of finding clearable talent, the task force notes that American youth are often unaware of the necessity for and rigors of security screenings and clearances before employment in national security-related occupations. American youth need to be made aware of “disqualifying life events” — drug abuse, arrest and even activities presented on social networking sites, such as Facebook and MySpace, that depict the candidate engaging in activities that could prohibit employment in national security-related occupations.

Every year tens of thousands of aerospace industry personnel are subjected to security clearance and renewal processes in order to perform many critical national security services. The current system is often backlogged for a year or longer and produces security clearances that are not portable among departments, agencies, from government to industry, industry to industry and so forth. As a result, industry and government suffer a myriad of problems in recruitment and from increased costs due to the unavailability of personnel.

AT: No Link – Export Controls

Companies aware of and comply with export controls, just have to screen & receive appropriate licenses employees but can still hire foreign nationals

Proctor, et al, Manager at KPMG International, 9

(Melissa, George Zaharatos, Senior Manager - Trade & Customs Services at KPMG and Heidi Miller, Senior Manager at KPMG , KPMG is a global network of professional firms providing Audit, Advisory and Tax services , “Innovating Aerospace and Defense: Road Map to US Export Compliance from Design to Realization”, Presented at 2009 Aerospace Industries Association/Supplier Management Council, September, <http://www.aia-aerospace.org/assets/smc_wp-export_compliance.pdf>) access 7/9/11

By nature, companies dealing primarily with defense articles are aware of export compliance risks and responsibilities relating to their products. ACME Defense screens new and existing employees against the restricted party lists and grants security clearances based on member grade level and function. In this case, it has become evident to ACME Defense during the design stage that the software application is listed on the United States Munitions List (USML)b and is subject to the jurisdiction of the DDTC. An initial product jurisdiction assessment is integral to the success of any defense article launch and defense-related company generally, since it is the basis of registration with the DDTC All manufacturers, exporters, and brokers of defense articles, defense services, or related technical data are required to register with the DDTC.6

The principal regulatory document relating to the control of the export and temporary import of defense articles, including the furnishing of defense services, is the International Traffic in Arms Regulations (ITAR). which implements the legislative authority and provisions of the Arms Export Control Act ITAR contains the USML which is a list of all designated defense articles and defense services, organized into categories.

By determining the correct USML category of the software application. ACME Defense can subsequently identify each of the members of the development team that are subject to a DDTC license or whether a license exception may be afforded for the release of the technology. Successful planning of this phase of the development process can mean significant gains related to product launch time and costs, since obtaining DDTC licenses may reach or even exceed 60 days. It is also important that licenses are maintained and monitored for the duration of the development period. It would be advisable for ACME Defense to have the company's global export compliance administrator participate at all levels of the product launch process.

AT: Link Turn – Spurs Student enter Aerospace field

Piecemeal effort like the plan not enough to solve lack of domestic students in aerospace

Aerospace Industries Association 8

(“Launching into Aerospace: Industry’s Response to the Workforce Challenge”,p.2, <http://www.aia-aerospace.org/assets/workforce_report_1_sept08.pdf>) access 7/8/11

Good intentions and piecemeal measures haven’t yielded detectable progress to reverse the downward trend of the U.S. aerospace workforce.

Sweeping and coordinated steps are essential now to ensure the ongoing competitiveness and success of U.S. aerospace. Our industry must recognize and surmount whatever stands in the way of resolving the situation or risk the accusation of neglect and complacency.

Only an integrated national strategy can revive domestic STEM education

Aerospace Industries Association 8

“A Special Report: Launching the 21st Century: American Aerospace Workforce”, December,

<http://www.aia-aerospace.org/assets/report_workforce_1208.pdf>) access 7/8/11

Making government a partner is essential to filling the aerospace workforce pipeline by advancing an integrated, national strategy that addresses STEM education and training as a systemic issue that affects all high-technology industries. Through research and outreach we have learned that innumerable organizations, groups and individuals are doing good work in inspiring, educating and training young people to pursue high-tech careers. But to a large extent they are working on their own without the benefit of an overarching plan or the synergies that come from communication and cooperation with others pursuing a common purpose.

AIA, therefore, is striving to become a key participant in a grand “coalition of coalitions” dedicated to solving our national STEM workforce crisis. Aerospace companies intend to do their part among a coalition of stakeholders from government, business, academia, workforce development entities, education nonprofits and others.

The federal government must be engaged and take a leadership role given the magnitude and scope of the

workforce challenge and its impact on our nation. But most of the work must be done and many of the

decisions must be made at the state and local level where education and training actually take place. We believe that real progress will only come when dedicated parties work together at all levels to tackle the problems that exist in every phase of education and training.

\*\*Impacts\*\*

Israel - AT: Brain Drain Now

Israeli Scientists returning home due to lack of American jobs

Benn, Haaretz Newspaper, Editor-at-large ‘08

(Aluf, October 12, Haaretz.com “Reverse the Brain Drain” <http://www.haaretz.com/print-edition/opinion/reverse-the-brain-drain-1.259211> 7/10/11 BLG)

America's troubles have given Israel a unique opportunity to strengthen its national resilience and growth potential. Israel's ability to stop the brain drain and bring back the social capital it lost increases as the recession in the United States worsens and opportunities there decrease. Israel has no natural resources but the minds of its young people, many of whom have left for the United States in search of better-paying jobs. Now is the time to bring them back and benefit from the interest, as it were, in the form of the education and experience they picked up at U.S. universities and companies.

Just as immigration from the former Soviet Union brought social capital and experience to Israel and allowed the economy to flourish over the past two decades, Israel could revitalize its economy by bringing back its citizens living in Western countries. At a time when U.S. President-elect Barack Obama believes investing in public works will help to cure the recession, Israel should invest in its people as a way to push forward. It must not miss this opportunity.

Over the past year, the government tried to bring back Israelis from abroad during the country's 60th birthday. Headed by Erez Halfon, the director-general of the Immigrant Absorption Ministry, the initiative offered improved conditions like tax breaks, help in finding employment and advice to small businesses. Around 1 million Israelis abroad and their children were his target audience and a few thousand have already returned. This week the ministry is holding events in eight locations in North America, London and Paris in an attempt to entice back Israelis concerned about the recession.

No Israeli Brain Drain- The Israeli Government just spent $350 million in programs to reverse brain drain

The Chronicle ‘11

(May 31, 2011, The Chronicle “Israel Announces First Grants in $350-Million Program to Reverse Brain Drain” http://chronicle.com/blogs/global/israel-announces-first-grants-in-350-million-program-to-reverse-brain-drain/29751 7/10/11 BLG)

The Israeli government has [announced](http://www.themarker.com/career/1.649414) the first three grants in its $350-million program to create 30 Centers of Research Excellence to lure Israeli scholars back from abroad. The first centers will be established in molecular science, led by the Hebrew University professor Howard Cedar; in cognitive processes, led by the Weizmann Institute of Science professor Yadin Dudai; and in computer science, led by the Tel Aviv University professor Yishay Mansour. The three centers have already signed up 11 Israeli scholars currently at U.S. institutions including Columbia, Harvard, and Yale Universities and the University of California at Berkeley. “In the framework of the national program to establish centers of excellence, some 300 leading Israeli scholars from the best universities in the world are expected to return to Israel,” said Manuel Trajtenberg, chairman of the Planning and Budgeting Committee of the Israel Council for Higher Education.

Israel - Impact Uniqueness

The ISA needs to further develop its space systems—3 key reasons

Ben-Israel and Kaplan, Israel Space Agency Chairman and ISA Director General, no date (M.K. Isaac and Dr. Zvi, ISA, “Out of this World: Israel’s Space Program”, http://www.mfa.gov.il/NR/rdonlyres/A7C494F2-62C2-44BC-8FA1-148D776A67DA/0/ch76.pdf , p99) 7/7/11 PG

**The debut of “Ofek-1” the first Israeli satellite** on September 19, 1988, **is a landmark for the beginning of the Israeli “Space Age.” This happened approximately 30 years after the beginning of the world’s Space Age** – the launch of Sputnik 1. Nevertheless, a posteriori, **the Israeli Space Program was viewed as a tremendous success**. A small country joined the exclusive club of seven space “superpowers.” **Israel was skilled enough to achieve a status of a world leader in the important niche of small but highly sophisticated space platforms**, exhibiting outstanding performances. **At present, the State of Israel is standing at a watershed. In order to leverage the already acquired achievements, it should be pursuing space technologies and space systems to further improve its position in three important dimensions: Strengthening its strategic defense status, elevating the level of excellence of its society and increasing its economical growth.**

Israel - take jobs in the US

Better conditions in the US prompt Israelis to move to America

Ephron, Newsweek Coresspondent, 11 (Dan, Newsweek, “There are problems out there”, 1/3, <http://www.newsweek.com/2011/01/03/stanley-fischer-on-israel-s-brain-drain.html>) access 7/7/11 PG

The conditions are enormously better in the United States. A graduating student in economics who gets his first job in the United States will earn three or four times what he earns in Israel. And the universities are better equipped and all that. It demands something of people to come back. In the early years of the state, people wouldn’t go abroad because of patriotism, but it’s become accepted as Israel has become a more normal country.

Plan draws Israeli scholars to the US for jobs

Saltzman, research fellow at the International Security Program at the Belfer Center, Kennedy School of Government, Harvard University, 10 (Ilai, Ph.D. in international relations from the University of Haifa, “The Brain Drain we don’t Hear About”, 5/13, <http://www.haaretz.com/print-edition/opinion/the-brain-drain-we-don-t-hear-about-1.290273>) access 7/7/11 PG

Recently, public discourse about the so-called brain drain - **the massive flight of Israeli academics to institutions of higher learning the world over, and especially in the United States - has intensified.** **For the most part, the discussion has revolved around scholars in the fields of biology, physics, chemistry, computer sciences, business administration and economics.** Hence, one might think that the flight of talent affects mainly the natural and exact sciences, as well as several nonscientific fields that are also considered "income generating" professions for the country, such as economics and business. Yet the **reality**, to our regret, is far more complex and worrisome. For, along with those in the sciences and economics-related fields, **there is also a consistent drain of academics in the social sciences and humanities**, whose work may not necessarily have a direct impact on leveraging the Israeli economy. Not only those seeking a cure for cancer or Alzheimer's are leaving the country, but also academics who are engaged in political science, history, literature, communications, statistics, linguistics and Middle Eastern studies, among many other fields.

Israel - AT: Brain Circulation

Educated people that leave Israel do not return—Israel’s growth suffers

Saltzman, research fellow at the International Security Program at the Belfer Center, Kennedy School of Government, Harvard University, 10 (Ilai, Ph.D. in international relations from the University of Haifa, “The Brain Drain we don’t Hear About”, 5/13, <http://www.haaretz.com/print-edition/opinion/the-brain-drain-we-don-t-hear-about-1.290273>) access 7/7/11 PG

**Judging from the fact that no one seems to be proposing a centralized effort to lure them back home, apparently these scholars are less important to the major decision-makers in the government and the academic planning institutions** (the Council for Higher Education and its planning and budgeting committee, for example ). **This may be because it is very difficult to quantify and calculate their contribution to Israel's growth.**

Those who leave Israel for the US don’t go back

Kraft, freelance journalist on Israeli affairs, 8 (Dina, The Global News Service of The Jewish People, “Israel struggles with brain drain”, March 30, <http://www.jta.org/news/article/2008/03/30/107597/i60braindrain>) 7/7/11 PG

TEL AVIV (JTA) – **Even though Hebrew University’s economics department is rated one of the top centers for economics in the world, the head of that department is having a tough time recruiting faculty. It’s not that good students don’t come out of the center**. **Just last year, eight went to top doctoral programs at Harvard, Stanford, the Massachusetts Institute of Technology and Yale, according to the departmental chair, Professor Eyal Winter. It’s that they’re not coming** back. “**We discuss their prospects of return after graduating and they say it’s inconceivable that they’ll stay in the U.S., but it turns out they rarely return**,” Winter said. **“Once they receive offers in the American market they decide to stay.” Hebrew University’s problem is Israel’s problem. In growing numbers, young top-tier Israeli academics and professionals are being drawn to positions abroad, mostly in the United States, lured by higher salaries and better working conditions**. The academics expect to earn much more money overseas than in Israel, and abroad they face lighter teaching loads and better research facilities. **A recent study found that more than one-quarter of lecturers who have taught in Israel have taken jobs in the United States.**

Israel - Scientific Brain Drain Hurts Military

Brain Drain hurts to econ and military readiness

Heller, AP Correspondent ‘08

(Aron, 8/5/2008, Jerusulem Post “Israel worries about dangerous brain drain” <http://www.jpost.com/Israel/Article.aspx?id=110030> 7/10/11 BLG)

Unlike other countries, brain drain here is seen as an existential threat. Good science is essential to national security, fueling breakthroughs that put Israel at the forefront of missile technology and other defense measures needed to safeguard it from its enemies. "We look at hi-tech as something that will not only save the economy, but it is also something that is saving us, every day," said Ben-David. In its early years, while fighting for its survival, Israel built a half-dozen top-flight universities. The hi-tech boom followed in the 1990s when the country's infectious entrepreneurial spirit was nurtured by generous government backing of R&D. The military proved to be a fertile training ground for promising engineers, and a million immigrants from the former Soviet Union gave a sharp boost to science and technology. Last year alone, Israel drew more than $1 billion in international venture capital. But Ben-David says Israel's achievements could be at risk if top minds continue to flee. His research shows the trend is most dire in the fields Israel excels at most. In computer science, for instance, 33 percent of professors now teach in the top 40 universities in the US. In economics, the figure stands at 29%, including 2002 Nobel Prize-winner Daniel Kahneman, who teaches at Princeton. "Apparently we are really, really good, because if our people can penetrate the top American universities at such a rate, that means we have world-class universities," BenDavid said. "That is the bright side. The flip side is that we are doing something very, very wrong if we can't keep them here." Between 1976 to 2005, the number of academic slots in the US grew by 29%. In Israel, they dropped by 35%, according to BenDavid. Statistics aside, the perceived slide in educational standards here has been characterized as nothing less than a national shame.

Building up Israel’s space program has empirically lead to a laundry list of impacts

Ben-Israel and Kaplan, Israel Space Agency Chairman and ISA Director General, no date (M.K. Isaac and Dr. Zvi, ISA, “Out of this World: Israel’s Space Program”, http://www.mfa.gov.il/NR/rdonlyres/A7C494F2-62C2-44BC-8FA1-148D776A67DA/0/ch76.pdf , p99) 7/7/11 PG

**Israel’s space program began with university-based research in the early 1960s**. The Israel Academy of Sciences and Humanities formally established the National Committee for Space Research in 1963**. The growth, in scope and depth, of related research activities led to the creation of a strong academic community that fostered a new generation of scientists and engineers**. Next, at the beginning of the 1980s, **Israel set its sights on developing the industrial and scientific infrastructure required for full-fledged membership in the “Space Community**.” The government established the Israel Space Agency in 1983 in affiliation to the Ministry of Science, Culture & Sport and charged it with the coordination of the nation’s space program. The emphasis continues to be on building a broad space infrastructure, and following the Ofek and its Shavit launcher, **a diverse scope of activities was established both for defense led by Israel MOD and for civilian applications under the leadership of ISA**. **The creation and the advancement of the Israel’s space industry was a natural outgrowth of the defense industrial infrastructure. Later on, private initiatives were established to develop space components and space-based services.** The industry’s prime contractor and system house is the Israel Aircraft Industries. **Other Industries such as “El Op” and “Rafael” are producing important core technologies and main sub-systems, and in the third circle, there are additional medium and small companies creating jointly a fully indigenous capability.**

Israel - Scientific Brain Drain Hurts Military

Israel must pursue new space technologies to strengthen strategic defense and increase economic growth—they cannot have people leaving

Ben-Israel, Chair Israel Space Agency and Kaplan, Director Israel Space Agency, 8

(Professor M.K. Isaac and Dr. Zvi, “Out of This World: Israel’s Space Program”, p. 99, <http://www.mfa.gov.il/NR/rdonlyres/A7C494F2-62C2-44BC-8FA1-148D776A67DA/0/ch76.pdf>, accessed 7/7/11 BLG)

The debut of “Ofek-1” the first Israeli satellite on September 19, 1988, is a landmark for the beginning of the Israeli “Space Age.” This happened approximately 30 years after the beginning of the world’s Space Age – the launch of Sputnik 1. Nevertheless, a posteriori, the Israeli Space Program was viewed as a tremendous success. A small country joined the exclusive club of seven space “superpowers.” Israel was skilled enough to achieve a status of a world leader in the important niche of small but highly sophisticated space platforms, exhibiting outstanding performances. At present, the State of Israel is standing at a watershed. In order to leverage the already acquired achievements, it should be pursuing space technologies and space systems to further improve its position in three important dimensions: Strengthening its strategic defense status, elevating the level of excellence of its society and increasing its economical growth. Historical Notes: Israel’s space program began with university-based research in the early 1960s. The Israel Academy of Sciences and Humanities formally established the National Committee for Space Research in 1963. The growth, in scope and depth, of related research activities led to the creation of a strong academic community that fostered a new generation of scientists and engineers.

Israel - Space Program Key to Military

Israel’s space program is key to their military technology

Globes Online 2000

English version of Israeli business daily "Globes", Aug 15, “How Israel high-tech happened”, <http://www.globes.co.il/serveen/globes/docview.asp?did=258771&fid=954>, accessed 7/7/11 BLG)

The military imperative has not disappeared. Even in the era of the peace process, Israel must keep up her guard. In response to the Iraqi Scuds that hit Tel Aviv in the 1991 Gulf War Israel began development of the Arrow anti-missile missile. The Arrow program began as part of the US SDI (Star Wars) program, requiring considerable advances in electronics, computers and ballistics. The Arrow will soon be ready for operational deployment. In general, the search for better systems in the areas of weapons, intelligence gathering, and command and control, goes on apace. In the 1990s, Israel became only the eighth country in the world to develop and launch satellites, beginning with the Amos civilian communications satellite, followed by the Ofek military satellites and the Eros civilian photo-reconnaissance satellite. Israel now partners with NASA, the ESA and the Russian space program, building component and complete satellites for scientific and civilian uses. In 2002, two of Israel’s six largest industrial companies by turnover were high-tech companies: Israel Aircraft Industries (IAI), Intel Electronics, as well as pharmaceutical company Teva (Nasdaq: TEVA; TASE:TEVA). The largest exporters in terms of sales included high-tech companies Teva, IAI, Intel Electronics, and Vishay Intertechnology (Israel), with over $1 billion in exports each.

Israel’s hi-tech industry is key to its military edge

Globes Online 2000

English version of Israeli business daily "Globes", Aug 15, “How Israel high-tech happened”, <http://www.globes.co.il/serveen/globes/docview.asp?did=258771&fid=954>, accessed 7/7/11 BLG)

David among Goliaths As a small country in a hostile neighborhood, Israel must strive to maintain a qualitative military edge over her potential enemies. Experience in a series of wars has taught Israel that she needs to develop that edge independently as far as she can. In large part, Israel’s high-tech industries are a spin-off from that process. Israel fought the 1967 Six Day War largely with French weaponry. When President de Gaulle imposed an arms embargo after that war, Israel turned to the United States, and to herself. The commercial consequences can be seen today. Blades Technology, for example, a company originally set up to manufacture engine parts for the Israel Air Force's Mirage aircraft, now has annual sales of $90 million, and joint ventures with Pratt & Whitney and Rolls Royce. In the 1973 Yom Kippur War, Israel was surprised by the technological capabilities of her enemies, and also experienced difficulty in obtaining vital materiel from her foreign suppliers, spurring efforts for technological supremacy and self-sufficiency. The Kfir jet fighter, based on the French mirage, was one of the first large-scale projects in this effort.

Israel – Economy

Hi-Tech industries and innovations are key to Israel’s economy

Shemer Software Engineer at Compass EOS 11

(Nadav, Jerusalem Post, “'Israel's economic success lies in start-ups, innovation'”, 6/22/11, <http://www.jpost.com/NationalNews/Article.aspx?ID=226133&R=R1>, accessed 7/7/11 BLG)

Rather than worry about establishing big companies, the key to the future of Israel’s economic success lies in safeguarding its comparative advantage in start-ups and innovation, Start-Up Nation coauthor Saul Singer said at the Israeli Presidential Conference in Jerusalem on Wednesday. “Israelis sometimes underestimate or misunderstand their own comparative advantage in the world,” he said. “And they have a tendency to ask, ‘Where’s our Nokia, where are our big companies?’” After finding that business people in Finland looked to Israel for examples on how to innovate, Singer said he quickly realized “that while Israelis have Nokia envy, in Finland they have start-up envy. And it turns out that in Korea, in Singapore and all around the world, people are trying to figure out how to do start-ups, and they have been traveling here to find out.” Singer, whose 2009 book is seen as the leading guide on Israel’s hi-tech miracle, was speaking on a panel entitled “The Israeli economy – a small leading market?” He said the Israeli economy would benefit by focusing on what it does best – innovation and start-ups – while synergizing those talents with the management and long-term planning skills of companies from abroad. “Our competitive advantage is this start-up phase… the premium on innovation is going up and the need for big companies to innovate is going up,” Singer said. “And big companies have their separate problem: They know how to scale things up but don’t know how to innovate,” he said, noting that Apple was the one exception. “The who’s who of technology – IBM, Cisco, Motorola, you name it – they’re here in a very big way, and what they’re doing here is effectively injecting themselves with innovation by buying up,” he said. But in Israel “there tends to be not enough emphasis on what the potential is, which is huge and multifaceted. “I think we have to very careful about not losing our cutting edge…we can’t take for granted start-ups, because if we lose them, we have a problem.” Finance Ministry director general Haim Shani said government policy was formed upon similar beliefs, with a focus on two major areas: “strengthening the hi-tech and advanced industry sectors.” “We have launched a program we have branded under the name of competitive advantage, which understands there is no silver bullet for the single success of the hi-tech industry,” he said. “But there are major areas in which the government cannot plan the market but can lay down the tracks for success.” Shani said as hi-tech constitutes 12 percent of GDP, it is extremely important for Israel’s future, which was one of the reasons the government had invested $500 million in four “excellence centers” that are currently in the works.

The economy facilitates Israeli military power

Globes Online 2000

English version of Israeli business daily "Globes", Aug 15, “How Israel high-tech happened”, <http://www.globes.co.il/serveen/globes/docview.asp?did=258771&fid=954>, accessed 7/7/11 BLG)

Economic imperative In part, the economic necessity derives from the military one. Israel's defense budget is inadequate for her to maintain her military advantage. One solution is export. Israel is both a highly successful defense and civilian high-tech exporter. However, the global defense market is shrinking. Civilian applications of the skills in software, communications, imaging, process control, etc., derived from military industries, have therefore become increasingly important. For example, the need for better night-vision equipment led to local engineers becoming trained in the field of image processing, and to the establishment of two trailblazing Israeli high-tech companies: Scitex (Nasdaq: SCIX; TASE:SCIX), and Elscint. Because Israel is such a small market, export is essential for civilian products too, providing a further incentive to maintain technological excellence, particularly in certain niche markets - network security, for example, where Check Point (Nasdaq: CHKP) is a world leader; Mercury Interactive Corporation (Nasdaq: MERQ) is a leader in enterprise testing and performance management solutions; and Amdocs (NYSE: DOX) is a leader in customer relations management, billing and order management solutions.

Israel - Economy

Brain drain affects Israel on multiple fronts—including a loss of 1.9 billion dollars a year

Kraft, freelance journalist on Israeli affairs, 8 (Dina, March 30, The Global News Service of The Jewish People, “Israel struggles with brain drain”, <http://www.jta.org/news/article/2008/03/30/107597/i60braindrain>) 7/7/11 PG

**The loss of human resources costs Israel some $1.9 billion each year**, economists in Brosh’s organization estimated. They are currently raising money to provide stipends for returning Israelis in the hope that a financial boost will be another incentive to go back. **Until the 1970s, Israel had about the same academic positions per capita as the United States, but since 1973 Israel’s population has doubled while the number of available faculty positions has declined**, Ben-David said. Another Israeli returnee, Shulamit Levenberg, who took a post in bio-engineering at the Technion Institute after five years doing post-doctoral work at MIT, says she wishes more of her colleagues were in Israel. “**Brainpower is one of the strengths of our country, and it’s a shame there are not more possibilities for people to come bac**k,” she said. “They went through a long process of study and can really contribute. **We are losing them.”**

South Africa 1/2

Aerospace industry on the rise in South Africa

Erasmus, Media Club South Africa Staff Writer, 8

(Janine, [SA’s aerospace industry takes off](http://www.mediaclubsouthafrica.com/index.php?option=com_content&view=article&id=689:centurion-aerospace-village-220808&catid=48:innovationnews&Itemid=115), 8/22/8, MediaClubSouthAfrica.com “SA’s aerospace industry takes off”, <http://www.mediaclubsouthafrica.com/index.php?option=com_content&view=article&id=689:centurion-aerospace-village-220808&catid=48:innovationnews&Itemid=115>, accessed 7/5/11 BLG)

South Africa’s aero-structure engineering and manufacturing sector is set to sky-rocket with the 19 August 2008 opening of the Centurion Aerospace Village (CAV), north of Johannesburg. The R600-million CAV is designed as a supplier park to support the country’s innovative and fast-growing aerospace sector, built along the lines of similar clusters around the world, such as Silicone Valley in California and Toulouse in France. It follows the example of the local automotive industry, which has a successful facility in the Automotive Supply Park in Rosslyn, Pretoria. The CAV follows on a Department of Trade and Industry (DTI) initiative launched a year ago by Minister of Trade and Industry Mandisi Mpahlwa, aimed at growing the industry. The Aerospace Industry Support Initiative includes two other key projects, the National Aerospace Centre of Excellence, based at Wits University, and the Aerospace Industry Support Initiative. The latter project is based at the Innovation Hub in Pretoria and is working to increasingly position the local aerospace industry as a key area for growth, as well as a major supplier in global markets.

Space program is key to the South African Economy

Denner, National Aerospace Centre of Excellence, 6

(Francois, EngineerIT, October 2006, “The South African aerospace industry – an emerging priority sector”, <http://www.eepublishers.co.za/article/the-south-african-aerospace-industry-an-emerging-priority-sector.html>, accessed, accessed 7/5/11 BLG)

This statement is made in recognition that these projects and initiatives may not currently have the visibility and scale of impact in comparison with projects like the Gautrain, pebble bed modular reactor or the significant announcements of increased infrastructure projects. The mere fact however that a new satellite programme is underway and that government has approved the establishment of a South African Space Agency, combined with programmes in support of advanced manufacturing industries in general, but aerospace specifically, is proof of a plan of action aimed at creating industries of the future, driven through cutting-edge technology interventions in support of the nations growth agenda. It is therefore perhaps important to reflect briefly on the contribution of high value industries in the context of the South African economy, and to get a better sense of how the emerging policy frameworks will be supportive of these industries. There has always been general recognition of South Africa’s relatively strong industrial capabilities, but increased global competition demands a constant process of upgrading these capabilities and strengthening those areas essential to enhance the competitiveness of the industrial base. The emerging industrial policy framework for South Africa recognises the contribution of a future advanced manufacturing industry for accelerated and sustainable economic growth and job creation. These advanced industries also have the potential to impact positively on the rest of South Africa’s industrial base through the ability to stimulate innovation and high-value skills development across the economy as a whole.

South Africa 2/2

The South African economy is key to the entirety African stability – and it is the economic powerhouse

SouthAfrica.info, no date (“South Africa: economy overview”, Gateway to the Nation, <http://www.southafrica.info/business/economy/econoverview.htm>, date accessed: July 11, 2011) PG

**South Africa is the economic powerhouse of Africa, leading the continent in industrial output and mineral production and generating a large proportion of Africa's electricity.**

**The country has** abundant natural resources, well-developed financial, legal, communications, energy and transport sectors, a stock exchange ranked among the top 20 in the world, and **a modern infrastructure supporting efficient distribution of goods throughout the southern African region**.

South Africa has a world-class and progressive legal framework. Legislation governing commerce, labour and maritime issues is particularly well developed, and laws on competition policy, copyright, patents, trademarks and disputes conform to international norms and conventions.

**The country's financial systems are sophisticated and robust. The banking regulations rank with the best in the world, and the sector has long been rated among the top 10 globally.**

Not only is South Africa itself an important emerging economy, **it is also the gateway to other African markets. The country plays a significant role in supplying energy, relief aid, transport, communications and investment on the continent. Its well-developed road and rail links provide the platform and infrastructure for ground transportation deep into Africa.**

African instability leads to nuclear war

Deutsch, economist, founder, Rabid Tiger Project, (Dr. Jeffery, RAPID TIGER NEWSLETTER, 2002, p. <http://www.rabidtigers.com/rtn/newsletterv2n9.html> (no longer accessible))

**The Rabid Tiger Project believes that a nuclear war is most likely to start in Africa. Civil wars** in the Congo (the country formerly known as Zaire), Rwanda, Somalia and Sierra Leone, and domestic instability in Zimbabwe, Sudan and other countries, **as well as occasional brushfire and other wars** (thanks in part to "national" borders that cut across tribal ones) **turn into a really nasty stew. We've got all too many rabid tigers and potential rabid tigers, who are willing to push the button** rather than risk being seen as wishy-washy in the face of a mortal threat and overthrown. Geopolitically speaking, Africa is open range. **Very few countries in Africa are beholden to any particular power. South Africa is a major exception in this respect - not to mention in that she also probably already has the Bomb**. **Thus, outside powers can more easily find client states there than, say, in Europe** where the political lines have long since been drawn, or Asia where many of the countries (China, India, Japan) are powers unto themselves and don't need any "help," thank you. Thus, **an African war can attract outside involvement very quickly.** Of course, a proxy war alone may not induce the Great Powers to fight each other. But an African nuclear strike can ignite a much broader conflagration, if the other powers are interested in a fight. Certainly, such a strike would in the first place have been facilitated by outside help - financial, scientific, engineering, etc**. Africa is an ocean of troubled waters, and some people love to go fishing.**

South Africa - Brain Drain hurts Economy

**Brain Drain to the west hurts Africa especially the South African Economy**

**Kiggundu and Oni, The African Capacity Building Foundation** Technical Advisory Panel and Nigerian Institute of Social and Economic Research**, 4**

(Prof. Moses, Carleton University, Canada and Chair, ACBF Technical Advisory Panel and Network on Public Administration and Management; Prof. Bankole, Nigerian Institute of Social and Economic Research, Ibadan, Nigeria, The African Capacity Building Foundation, “AN ANALYSIS OF THE MARKEY FOR SKILLED AFRICAN DEVELOPMENT MANAGEMENT PROFESSIONALS,” January 2004) KA

Several studies have documented the magnitude of the problem of the loss of skilled African professionals through emigration. Although precise numbers are hard to come by, and although the net impact of such losses varies by country, region, sector, and over time, the following statements highlight the magnitude and implied impact of the problem: According to the International Organization for Migration (IOM) and UN Economic Commission for Africa (ECA), between 1960 and 1975 an estimated 27,000 highly qualified Africans left the continent and emigrated to the west. The number increased to approximately 40,000 between 1975 and 1984, and then almost doubled by 1987, representing 30% of the highly skilled African human capital. Again, in the five-year period 1985 – 1990 when many African countries embarked on the structural adjustment programme to manage their domestic economies that were in serious structural disequilibrium, the continent lost about 60,000 professionals. This trend has gotten worse as about 20,000 skilled people migrate out of the continent annually according to ECA statistics. A World Bank study reported that some 70,000 highly qualified African scholars and experts leave their home countries every year to work abroad, often in the Triad (North America, Europe, and in the United Nations System). There are more African engineers working in the USA than those in the whole of Africa. According to studies done by Jean Baptiste Meyer of the Paris-based Institute for Development Research (IDR), in 1999, ten percent of foreign-born professionals working in France were born in Sub-Saharan Africa. The comparable future for the USA in 1997 was 2.7%. The African born skilled professionals working abroad are five times more productive than their back home counterparts. There are an estimated 20,000 scientists and engineers in Africa or 3.6 percent of the world’s scientific population, serving a population of over 600 million or about 10 percent of world population. At one time, Zambia had over 1600 medical doctors, by current counts; there are now only 400 in practice. According to the UNDP 1993 Human Development Report, there were more than 21,000 Nigerian doctors practicing in the USA alone. Approximately 60% of Ghanaian doctors trained locally in the 1980s left the country, while in the Sudan 17% of doctors and dentists, 20% of university lectures and 30% of engineers in 1978 alone had gone to work abroad. In 2000, Africa News reported that a skilled workers shortage would affect South Africa’s ability to fulfill economic growth targets over the next three to five years. A report by the South African Corporate Services estimated that the shortage of managerial and technical staff was between 350,000 and 500,000. It is estimated that Africa spends about US $4 billion annually on recruiting some 100,000 skilled expatriates and consultants.[[1]](#footnote-1) Although African countries, communities and villages are receiving increasing sums of remittances from emigrants working abroad, the general consensus is that remittance benefits do not compensate for the net loss of skilled African professional human capital. Reacting to the debate about the relative importance of remittances, Dr. Sako, Executive Secretary of the African Capacity Building Foundation wrote: At the moment, what is needed in Africa is not evidence of relative benefits from brain drain-revenues generated by emigrant professionals relative to remittances they make to there source countries-but strategies for mitigating the effect in the short to medium term and substantial reduction in the outflow in the longer term. (Sako 2002: 5-10).<CONTINUED>

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According to a recent World Bank Report (Adams and Page, 2003), both international migration (the share of a country’s population living abroad) and international remittances (the share of remittances in a country’s GDP) have a strong, statistical impact on reducing poverty in the developing world. On average, a 10 per cent increase in the share of international migrants in a country’s population will lead to 1.6 per cent decline in poverty headcount.

African and other developing countries worry about the brain drain even though any output losses from migration of skilled workers may be more than offset by remittances and positive network effects on trade and investment. The leading African recipients of remittances as a percentage of GDP are Lesotho (26.5 %), Cape Verde (13.6 %), Morocco (9.7 %), and Uganda (8.5 %) (Ratha 2003, p.159). Global remittances come from the USA (30 %), Saudi Arabia (15 %) and Belgium, Germany, and Switzerland (8 % each).

Drawing on the experiences of other developing countries, Castles (2000) gave a more elaborate account of the effects of remittances when he wrote: “At the micro level, remittances have provided resources to improve agricultural enterprises or establish other types of enterprises. At the micro level, remittances have provided a substantial amount of foreign exchange… (emigrants) have often brought new skills as well as experience in a wide range of economic activities. However, without effective policies to maximize these benefits, resources have often gone into unproductive or unsuccessful ventures. The most common investment has been in small-scale enterprises in transport, catering, and other services with skills gained abroad often wasted for lack of relevant opportunities. What is more, by providing individuals escape from economic stagnation, emigration may well have reduced pressure for economic and social change.” (p.55).[[2]](#footnote-2)

Although the statistics on emigration and its effects are hard to verify, available evidence suggests that African loss of skilled professionals is a serious problem. The evidence also points to the conclusion that overall, the costs outweigh the benefits, and for most countries, the problem seems to be getting worse. Therefore, strategies are needed to gain a better understanding of the complexities and dynamics of the problem, and to develop mitigating strategies and effective policies and management tools.

A key question is the relationship between capacity and emigration. According to evidence from the field, the often-reported African lack of capacity for effective implementation of economic, social and political change and development may well be related to the loss of professional human capital through emigration. Although, losses due to other causes such as disease (HIV/AIDS, Malaria, TB), conflict and war also play an important part in the loss of skilled professionals, professional brain drain and other emigration losses cannot be ignored.

South Africa - Internal Link – Economy

South Africa’s aerospace industry is essential to cooperation between academia, government, and stakeholders.

Goldwyer, Creamer Media Features Writer ‘07

(Neal Goldwyer, February 9 2009, Engineering News “Clear skies predicted for aerospace industry” <http://www.engineeringnews.co.za/article/clear-skies-predicted-for-aerospace-industry-2007-02-09> 7/6/11 BLG)

The institutional and policy framework of South Africa’s first industrial centre of excellence is now in place to facilitate fruitful cooperation between academia, government and stakeholders in an aerospace industry that is full of potential. The National Aerospace Centre of Excellence (NACoE) director Francois Denner is upbeat about the prospects for South African aerospace and not merely because of the potential export capability. He says that the country has the potential to become an original-equipment manufacturer (OEM) of regional aircraft through potential partnerships with Brazilian regional airline Embraea and Canadian transportation solutions manufacturer Bombardier, which produces small aircraft and business jets. He also foresees South African State-owned enterprise Denel Aviation and privately-owned Aerosud becoming privileged ‘first tier’ or direct suppliers to aerospace giants Boeing and Airbus. Denner says that a closer relationship with these dominant multi- nationals would teach South African firms what it takes to become globally competitive aircraft manufacturers. “There is a need at this point for an efficient cluster of companies operating as a unit. We need companies, no more than two or three, acting as first-tier suppliers to Boeing or Airbus. First-tier sup- pliers are companies that have proven their ability to meet stringent quality and certification requirements and are, therefore, in a better position to tender for work on new platforms and fleets such as the Airbus A350 and Boeing’s 787.” The orders placed with Denel and Aerosud reveal a confidence in our industry and its players, but Denner warns that the intense rivalry and competition that used to define South African aerospace cannot be risked at this stage when the country’s relatively small industry is proving its capabilities.

South Africa – African Econ key to US Econ

African economic success is key to preserving the US economy.

Payne 03 (Donald Payne, congressman D-NJ, 4-30-03 "Congress and Africa: Perspectives of Congressman Payne and CBC", lexis)

From the war on terrorism to the supply of crucial resources, from the campaign against threatening diseases to the opportunities for economic trade and investment, **Africa is a key global player. We ignore the continent at our own peril. Africa matters** in many ways. **Trade and investments with Africa are growing. In 2002, for example, total U. S. exports to Africa totaled over $5.8 billion, while U. S. imports were $18 billion.** If we take Nigeria alone, the West African giant is the 5th largest supplier of petroleum to the United States, and other **key oil-rich countries** like Angola and Gabon **play key roles in meeting U. S. strategic resource requirements**. While oil is clearly a source of U. S. interest it is also something that must be dealt with closely and carefully. Some of us know all too well that the extraction of oil and other precious resources found on the continent have sparked, funded, and exacerbated brutal wars which led to some of the greatest human rights abuses of our time. It is with this in mind that many are watching carefully and weighing in to ensure that everyone is on the same page and that these atrocities do not occur anymore. A major step was taken in the House recently when H. R. 1584 (Houghton and Rangel), a bill to implement effective measures to stop trade in conflict diamonds, was passed and subsequently became public law on April 25th. Many of you know that this has long been a work in progress. It shows how tragedy can sometimes spawn real progress and change. Africa is also making important gains in promoting democracy...This is a momentous period in Africa with the rebirth of the OAU in the form of the African Union and the launching of the New Partnership for African Development (NEPAD). The Congressional Black Caucus (CBC), a staunch advocate for the strengthening of relations between the peoples of Africa and the U. S., especially the African-American community, is resolute to seize the moment. The CBC is determined to set the tone and define a clear agenda for Africa. The Black Caucus is convinced that strengthening cultural, political, and economic ties with Africa is good for America as well as the people of Africa. The CBC cannot afford to wait on the margins or observe from a distance. We must be actively engaged in what matters to our community since our destiny is tied with that of the rest of the world, especially with Africa. **Africa, with its abundant natural resources and untapped human talent, matters economically, strategically, and politically**. The African-American community has the means and talent to help Africa. **Success in Africa brings prosperity and dignity to our community in America.**

South Africa - Now Key

Space key to South African Economy- now more than ever

Erasmus, Media Club South Africa Staff Writer ‘08

(Janine Erasmus, [SA’s aerospace industry takes off](http://www.mediaclubsouthafrica.com/index.php?option=com_content&view=article&id=689:centurion-aerospace-village-220808&catid=48:innovationnews&Itemid=115), 22 August 2008, MediaClubSouthAfrica.com “SA’s aerospace industry takes off” <http://www.mediaclubsouthafrica.com/index.php?option=com_content&view=article&id=689:centurion-aerospace-village-220808&catid=48:innovationnews&Itemid=115> 7/5/11 BLG)

Note: Mr Mpahlwa is South Africa Minister Of Trade And Industry,

Speaking at the official launch of the CAV in August 2008, Mpahlwa said that “The aerospace industry is a highly visible, prestigious and strategic industry that reflects South Africa’s ongoing transformation at home, whilst cementing the strategic ties with traditional trading and industrial partners in Europe and the US.” Mpahlwa also highlighted South Africa’s new, alternative alliances with similarly developing nations such as India, Brazil and China. The minister added that government has clear plans for the aerospace industry and is intent on developing it to be as healthy and vibrant as the automotive industry by 2014, with the vision of a sustainable, growing, empowered and internationally recognised South African aerospace industry by this time. The government’s National Industrial Policy Framework, which came into effect in August 2007, recognises the opportunities available for South African companies engaged in advanced manufacturing to participate in the world market and produce high-value export revenues. The primary function of the National Industrial Policy Framework is to lay down government’s approach, for the short-medium and medium-long terms, to the industrial development of South Africa’s economy.

**\*\*India Poverty Scenario\*\***

Skilled scientists advancing Indian space program now

Sen, professional blogger, webmaster And internet Marketer, 08

(Uttoran, Tech Nascent: Tech News, 10/20/8, “Technology in India – Massive Brain Drain”, <http://technascent.com/technology-in-india-massive-brain-drain/>, accessed 7/5/11 BLG)

India, a very ancient nation, immensely rich in culture, history, literature and arts is also making rapid progress in the field of technology. Considering that India, which is only in its 61st year of independence and self-governance, has made great progress in this field. Technology, both with the help of technologically advanced nations and indigenously developed has made India into an emerging superpower. India over the years has made inroads into the field of space technology, computers, medicine and electronic appliances. India has a well-funded space program, better than most similar economies. We have our own satellite launching centers and we have successfully launched many satellites into space. Initially started with Russian technological help, we now have our own indigenously produced satellites with very competent and professional team of scientists. We also have an ambitious program for the future with plans of sending manned flights into space in the near future. In the field of information technology India truly is a global superpower with the majority of developed nations sourcing work related to that field from India. The country boasts of a rich source of brainpower in IT and related segments. With major players in the IT industry opening up offices in many cities in India, this field has truly seen a phenomenal growth. Standards have gone up and new and new projects are coming up in India and this in turn has seen a huge demand for manpower with the necessary skill sets.

Indian space technology is key to solve poverty

Padma, Director of Graduate Diversity Affairs - [University of Rhode Island](http://en.wikipedia.org/wiki/University_of_Rhode_Island), 7

(T.V., PhD Oceanography, Science and Development Network “Space technology 'invaluable for development'” 9/29/7, <http://www.scidev.net/en/science-and-innovation-policy/brain-drain/news/space-technology-invaluable-for-development.html>, accessed 7/5/11 BLG)

Space technology has enormous potential to help developing countries progress, an international meeting has been told. Karl Doetsch, chairman of US-based firm Athena Global, told a plenary session of the International Astronautical Congress meeting in Hyderabad, India, on Friday (28 September) that sustained poverty reduction needs the application of space technology and that space scientists should play a larger role in policymaking. India uses satellite technology to invigorate development by improving communications and the management of natural disasters and resources such as water, and for weather forecasting, long-distance education and telemedicine services. It is a model other countries should follow, Doetsch says. At the conference, Jason Hay of the US-based Space Policy Institute at the George Washington University pointed out that developing countries are increasingly turning to space technology to speed up their development. Space technology, he said, can also improve technical skills, infrastructure and knowledge capital, and provide services such as global positioning information.

Poverty outweighs

Spina, Ph.D. candidate in social/personality psychology at the Graduate School of the City University of New York, 2000

(Stephanie Urso, Smoke and Mirrors: The Hidden Context of Violence in Schools and Society, p. 201)

This sad fact is not limited to the United States. Globally, 18 million deaths a year are caused by structural violence, compared to 100,000 deaths per year from armed conflict. That is, approximately every five years, as many people die because of relative poverty as would be killed in a nuclear war that caused 232 million deaths, and every single year, two to three times as many people die from poverty throughout the world as were killed by the Nazi genocide of the Jews over a six-year period. This is, in effect, the equivalent of an ongoing, unending, in fact accelerating, thermonuclear war or genocide, perpetuated on the weak and the poor every year of every decade, throughout the world.

\*\***India Conflict Scenario 1/2\*\***

Brain drain hurts India’s economy and growth

Krishnadas, editor of TechIndia, 1 (Kariyatil, EE Times – News and Analysis, “Brain drain hurts developing nations, U.N. reports”, July 19, <http://www.eetimes.com/electronics-news/4042261/Brain-drain-hurts-developing-nations-U-N-reports>) PG

Brain drain hurts developing nations, U.N. reports

BANGALORE, India — **The exodus of Indian engineers mostly to the United States costs India $2 billion annually, according to a recent U.N. study.**

**While the United Nations Human Development Report 2001 stresses that "technology itself has become a source of economic growth" for countries like India, many of the benefits are being outweighed by the brain drain of engineering talent.**

**"Rich nations have been opening their doors to developing-country professionals at a high cost to the home countries**," the U.N. study warned. Based on the $15,000 to $20,000 average total cost of providing a university education in India, the **country losses as much as $2 billion a year in technical investment.**

**While migrating Indian engineers enjoy a higher social status, they are often derided as "slaves to the almighty dollar," or as individuals who, while benefiting from a highly subsidized government education here, have no incentive to help the Indian society that has trained them.**

Growth is directly tied to reducing the risk of South Asian conflict.

Mamoon & Murshed, Professor the Birmingham Business School, University of Birmingham & Centre for the Study of Civil War, 10

(Dawood & Mansoob, “The conflict mitigating effects of trade in the India-Pakistan case” Econ Gov, 11:145, p160-161, 2010,<http://www.springerlink.com/content/4736rl34w118q532/fulltext.pdf>) PG

However, **if India is able to export or import more, this would at least put a check on any rise in the severity of conflict and hostilities would adjust to some average level. Any decline in Indian trade will enhance hostilities**. **The current low levels of bilateral trade between Pakistan and India is conflict enhancing, so more trade with increased exports by both sides to each other should be encouraged.** More access to Pakistani markets on the Indian side may not lead to conflict mitigation if Pakistan is not able toalso export more to India. **A rise in education expenditure puts a check on hostilities**, as seen in Graph 1e. Graph 1f is the standard representation of India-Pakistan conflict,and not only best fits historical trends but also explain the rationale behind recent India-Pakistan peace initiatives with decreasing hostilities when not only India but Pakistan also has had economic growth rates as high as 7% per annum. The forecasts suggest that **conflict will rise, even if there is a significant increase in combined democracy scores, if growth rates plummet. Both Pakistan and India have seen many such years, when hostilities between both countries rose significantly when at least one of the countries is performing poorly, but were channeling more resources on the military as a proportion of their GDPs**. The forecasts favour the economic version over the democratic version of the liberal peace. Thus one may look at current peace talks between both countries with optimism as both are performing well on the economic front and channeling fewer resources on the military as a proportion of national income, while at the same time having a divergent set of political institutions, though recently Pakistan has edged towards greater democracy with elections in February 2008.

\*\***India Conflict Scenario 2/2\*\***

Extinction

**Fox, Reuters, Health and Science Editor ‘08**

(Maggie, April 8, Planet Ark “India-Pakistan Nuclear War Would Cause Ozone Hole” <http://www.planetark.com/dailynewsstory.cfm/newsid/47829/story.htm> 7/10/11 BLG)

Fires from burning cities would send 5 million metric tonnes of soot or more into the lowest part of Earth's atmosphere known as the troposphere, and heat from the sun would carry these blackened particles into the stratosphere, the team at the University of Colorado reported.

"The sunlight really heats it up and sends it up to the top of the stratosphere," said Michael Mills of the Laboratory for Atmospheric and Space Physics, who chose India and Pakistan as one of several possible examples.

Up there, the soot would absorb radiation from the sun and heat surrounding gases, causing chemical reactions that break down ozone.

"We find column ozone losses in excess of 20 percent globally, 25 percent to 45 percent at midlatitudes, and 50 percent to 70 percent at northern high latitudes persisting for five years, with substantial losses continuing for five additional years," Mills' team wrote in the Proceedings of the National Academy of Sciences.

This would let in enough ultraviolet radiation to cause cancer, damage eyes and skin, damage crops and other plants and injure animals.

Mills and colleagues based their computer model on other research on how much fire would be produced by a regional nuclear conflict.

"Certainly there is a growing number of large nuclear-armed states that have a growing number of weapons. This could be typical of what you might see," Mills said in a telephone interview.

SMOKE IS KEY

Eight nations are known to have nuclear weapons, and Pakistan and India are believed to have at least 50 weapons apiece, each with the power of the weapon the United States used to destroy Hiroshima in 1945.

Mills said the study added a new factor to the worries about what might damage the world's ozone layer, as well as to research about the effects of even a limited nuclear exchange.

"The smoke is the key and it is coming from these firestorms that build up actually several hours after the explosions," he said.

"We are talking about modern megacities that have a lot of material in them that would burn. We saw these kinds of megafires in World War Two in Dresden and Tokyo. The difference is we are talking about a large number of cities that would be bombed within a few days."

Nothing natural could create this much black smoke in the same way, Mill noted. Volcanic ash, dust and smoke is of a different nature, for example, and forest fires are not big or hot enough.

The University of Colorado's Brian Toon, who also worked on the study, said the damage to the ozone layer would be worse than what has been predicted by "nuclear winter" and "ultraviolet spring" scenarios.

"The big surprise is that this study demonstrates that a small-scale, regional nuclear conflict is capable of triggering ozone losses even larger than losses that were predicted following a full-scale nuclear war," Toon said in a statement.

Mills noted the United States is currently working on a controversial deal that would give India access to US nuclear fuel and equipment for the first time in 30 years even though India refused to join nonproliferation agreements.

Nonproliferation advocates believe it undermines the global system designed to prevent the spread of nuclear weapons.

India – Uniqueness

There is reverse brain drain in India – better opportunities

Chopra, freelance reporter, 11 (Anuj, July 10, The National, “India Reverses its Brain Drain”, <http://www.thenational.ae/thenationalconversation/industry-insights/economics/india-reverses-its-brain-drain>) PG

But in 2008, he decided to go against the tide. With his wife and children, he returned to India and settled in Gurgaon, the fastest-developing city in northern India, where roads are cratered with potholes, power cuts are frequent and setting up a business can seem as hard as launching a lunar mission.

But he had returned to a new **India,** which despite all its ills, **is fast emerging as a promised land for entrepreneurs.**

"**In India, there is opportunity everywhere," Mr Jain, 42, who is the managing director of Aamod resorts**, a chain of boutique hotels and townships, told The Economic Times newspaper last month as part of its new survey on brain drain. "Building a resort? I couldn't have done that in UK."

**Many Indian-born executives such as Mr Jain are returning home, trading their dream of conquering Wall Street or Silicon Valley for working in Gurgaon or Mumbai.**

Last year, about **60,000 professionals from around the world returned to India,** according to the recruitment advisory firm Heidrick & Struggles. **The study, which said the trend was likely to grow this year, was a joint project with The Economic Times**. It said **82 per cent of non-resident Indians (NRIs) and people of Indian origin living elsewhere were willing to move to India** if suitable opportunities came their way.

There is reverse brain drain in India – better jobs and economy

Chopra, freelance reporter, 11 (Anuj, July 10, The National, “India Reverses its Brain Drain”, <http://www.thenational.ae/thenationalconversation/industry-insights/economics/india-reverses-its-brain-drain>) PG

**The trend is part of a "brain gain" phenomenon that is accelerating as India's economy expands rapidly, salaries grow annually in double digits, and there are opportunities galore to make an impact faster than in Western economies still reeling from the global downturn and EU debt crisis**.

Rajiv Inamdar, a director at Heidrick & Struggles, says that given **the poor jobs market in the West, it is the new opportunities spawned by India's dynamic economy that are luring people back.**

Analysts say **India has been less affected by the global downturn because the economy is less dependent on exports.** Compared with Western economies, the recovery in India has been much faster.

"**Today, we in India are experiencing the benefits of the reverse flow of income, investment and expertise from the global Indian diaspora**," Manmohan Singh, the prime minister, said in December. "**We are drawing on the global brain bank of people of Indian origin worldwide."**

Vivek Wadhwa, a senior research associate at Harvard Law School, said last year that **more than 100,000 Indians who had gone abroad in search of jobs would move back to India in the next half decade**. **He said a similar trend would be seen among Chinese executives who were graduates of US universities.**

Uniqueness

No Brain Drain - Many Indian “brains” are retuning

Acharya Freelance Journalist ‘11

(Keya, April 15, Global Issues “India: Somem Brains Drain Back” <http://www.globalissues.org/news/2011/04/15/9289> 7/10/11 BLG)

They were the face of India’s 'brain drain' - the best and the brightest government-educated scholars who eventually left for foreign shores. Now, they have opted to give back as a gesture of thanks for the top-notch education they received.

They are alumni of the Indian Institutes of Technology, the country’s premier academic institute which the Times Higher Education Supplement has ranked the world’s third best technology institution, after the Massachusetts Institute of Technology and the University of California at Berkeley.

Set up by the government for post-war and post-independence industrial development, IIT started in Kharagpur in West Bengal in 1950. It now has 15 campuses all over India, its graduates considered among the country’s academic and professional elite, many of them successful industrialists, entrepreneurs, businessmen and achievers.

Their education was heavily subsidised by the government, and they were at one point criticised for taking taxpayers’ money only to leave the country, mainly for the United States.

'An awareness has now started that you must give back to society,' said Collur Dhananjay, an electronics alumnus of the IIT in Kharagpur and secretary of the Bangalore chapter of the IIT Alumni Association of Kharagpur.

'This present generation of ‘IIT-ians’ are now seeing real wealth and want to do more,' Dhananjay added.

**India – Space key to Military**

India’s development of the supersonic missile gave it first strike capability

The Hindu 9

(India’s National Newspaper, The Hindu, “India, a global player in space technology”, 4/5/11, <http://www.hindu.com/2009/04/05/stories/2009040556100800.htm>, accessed 7/5/11 BLG)

Achieving self-reliance in science and technology was the key for the country to emerge as a developed nation, observed A. Sivathanu Pillai, Chief Executive Officer and Managing Director, BrahMos Aerospace. Emphasising the need for reversing brain drain and the resource drain through import of technology, Dr. Pillai pointed out that the country in the past had to face technology denials and was being dumped with low technology. But the country was making rapid progress in various fields and has emerged a global player in space and missile technology. The world has come a long way from human centric to platform centric warfare. Future wars would be network centric. The development of the supersonic missile was a huge step forward as they were vital as first strike weapons, he said at an interactive meeting on ‘Commemorative Stamps on BrahMos Missile,’ hosted by the Tiruchi Philatelists Association here on Saturday. Dr. Pillai dwelt at length on the history of the development of weapons system, especially rocket technology, in India. He expressed gratitude to the Department of Posts for recognising the DRDO’s efforts by bringing out stamps on the BrahMos missile. “Stamps were historical records and we are much obliged to the Department,” he said.

India – economic decline bad

Economic decline leads to poverty and civil war

Mumbai Space 9(Indian search engine, Mumbaispace.com, “Economic Collapse”, 9/23/9, <http://www.mumbaispace.com/economic-crisis/economic-collapse.htm>, accessed 7/11/11, CW)

Economic collapse is the ultimate disaster from the point of view of an economy. It’s a stage where production is totally stagnated and depression is largely prevalent. Most often, economic collapse is also followed by civil unrest, large scale poverty, economic isolation etc. However, current economic scenario in world can be not be termed as economic collapse.

Indeed, either many countries are firmly in the grip of recession are on the verge of it but economic collapse is far from sight. When one talks about economic collapse, there are few particular examples of complete collapse.

India - AT: No Nuclear War

India Pakistan War would trigger nuclear war

Nabi, 3 (Dr. Ghulam, India-Pakistan Summit and the Issue of Kashmir, July 13, 2003, p. http://www.pakistanlink.com/Letters/2001/July/13/05.html)

**The most dangerous place on the planet is Kashmir, a disputed territory convulsed and illegally occupied for more than 53 years and sandwiched between nuclear-capable India and Pakistan. It has ignited two wars** between the estranged South Asian rivals in 1948 and 1965**, and a third could trigger nuclear volleys and a nuclear winter threatening the entire globe**. The United States would enjoy no sanctuary. **This apocalyptic vision is no idiosyncratic view. The Director of Central Intelligence, the Department of Defense, and world experts generally place Kashmir at the peak of their nuclear worries.** Both India and Pakistan are racing like thoroughbreds to bolster their nuclear arsenals and advanced delivery vehicles. Their defense budgets are climbing despite widespread misery amongst their populations. Neither country has initialed the Nuclear Non-Proliferation Treaty, the Comprehensive Test Ban Treaty, or indicated an inclination to ratify an impending Fissile Material/Cut-off Convention.

India - AT: No Extinction

India Pakistan war leads to extinction

Nabi 1, Executive Director, Kashmiri American Council, (Ghulam, WASHINGTON TIMES, September 8, 2001, p. 1)

**The foreign policy of the United States in South Asia should move** from the lackadaisical and distant (with India crowned with a unilateral veto power) **to aggressive involvement** at the vortex. **The most dangerous place on the planet is Kashmir,** a disputed territory convulsed and illegally occupied for more than 53 years and **sandwiched between nuclear-capable India and Pakistan. It has ignited two wars** between the estranged South Asian rivals in 1948 and 1965, **and a third could trigger nuclear volleys and a nuclear winter** **threatening the entire globe**. The United States would enjoy no sanctuary.

India - AT: Deterrence Solves

Deterrence doesn’t solve—nuclear war escalates too quickly

GSN 10 (Global Security Newswire, 3/16/2010, “Regional Nuclear War Could Devastate World Population, Report Warns,” <http://www.globalsecuritynewswire.org/gsn/nw_20100315_4193.php>)

**Computer modeling suggests a nuclear exchange between India and Pakistan would block out the sun with large amounts of airborne debris, disrupting global agriculture and leading to the starvation of around 1 billion people, Scientific American reported** in its January issue (see GSN, March 4).

The nuclear winter scenario assumes that cities and industrial zones in each nation would be hit by 50 bombs the size of the atomic bomb dropped on Hiroshima, Japan, in World War II. **Although some analysts have suggested a nuclear exchange would involve fewer weapons, researchers who created the computer models contended that the panic from an initial nuclear exchange could cause a conflict to** quickly escalate. **Pakistan, especially, might attempt to fire all of its nuclear weapons in case India's conventional forces overtake the country's military sites**, according to Peter Lavoy, an analyst with the Naval Postgraduate School.

The **nuclear blasts and** subsequent **blazes and radiation could kill more than 20 million people in India and Pakistan,** according to the article.

Assuming that each of the 100 bombs would burn an area equivalent to that seen at Hiroshima, **U.S. researchers determined** that the **weapons used against Pakistan would generate 3 million metric tons of smoke and** the **bombs dropped on India would produce 4 million** metric tons of smoke. **Winds would blow the material around the world, covering the atmosphere over all continents within two weeks.**

The **reduction in sunlight would cause temperatures to drop by 2.3 degrees Fahrenheit for** several **years** and precipitation to drop by one-tenth. **The climate changes and** other **environmental effects of the nuclear war would** have a devastating **effect on crop yields** unless farmers prepared for such an occurrence in advance.

The observed effects of volcano eruptions, smoke from forest fires and other events support the findings of the computer modeling, the researchers said.

**"A nuclear war could trigger declines in yield nearly everywhere at once, and a worldwide panic could bring the global agricultural trading system to a halt, with severe shortages in many places. Around 1 billion people worldwide who now live on marginal food supplies would be** directly threatened with starvation **by a nuclear war between India and Pakistan** or between other regional nuclear powers," **wrote Alan Robock, a climatology professor at Rutgers University in New Jersey, and Owen Brian Toon, head of the Atmospheric and Oceanic Sciences Department at the University of Colorado at Boulder.**

\*\*Russia Scenario\*\*

**Russia is reversing brain drain now, flight to the US is irreversible**

Eurofora ‘10

(ACM, EuroFora, Eurofora.net, “Russian Space Research Institute Head Zelenyi to EuroFora: Projects before Medvedev-Sarkozy Summit”, 2/17/10, <http://www.eurofora.net/newsflashes/news/russianspaceresearch.html>, accessed 7/2/11 BLG)

"And, also, we are always interested in Space Education, because it's one of the main issues, both in EU, in the States and in Russia, etc. But for us, in Russia, we have a special problem : It's called "Brain Drain", Professor Zelenyi went on to add. - "When it's drain to the EU, we (Russia) we don't consider that any more as "Brain Drain", because we are considering ourselves (i.e. Russia) as part of Europe. But when educated People go to the US it's more complicated, (since) they never come back, so far.. However, for People working in France or Germany, it's differend, there are contacts, etc", he observed. - "And now, there is an interesting trend, after 2 Decades of violent Capitalism in Russia : Before, Young People had stopped to be interested in a real career, to be Engineer, to be Scientist, etc. Everybody wanted to be a Lawyer, to be a Stockbroker, Money kripling etc. But now it's changing, the Global Crisis came, and a sort of "Reverse-Flow" begun. We have now many Young Students decided to make their careers, they need to do something real, not imaginary as selling Stocks. So, now we have good Students, good Post-Docs, etc. And now, I've just come here to see how EU is solving the problem of Space Education" and communication to the public, Zelenyi said.

Russia’s space industry is key to their economy

Zak, Air & Smithsonian space reporter, ‘11

(Anatoly, Russian Space Web, “Russian Space Program in the 2010s”, 6/8, <http://www.russianspaceweb.com/russia_2010s.html>, accessed 7/2/11 BLG)

Russia entered the second decade of the 21st century in the midst of the world-wide economic crisis. In 2009, the Russian economy shrank by 8.5 percent, amid declining oil revenues and the flight of foreign capital from the country. As a result, the nation's space budget, heavily dependent on government subsidies, experienced a shortfall in the runup to 2010, pushing a number of projects behind schedule. Still, in a larger economy there were some positive developments on the horizon -- one being a reported long-awaited reversal of the 15-year-long population decline. As a key ingredient of a healthy nation, the population increase promised to reduce Russia's lag behind the economic growth of China, Brazil and India -- nations with emerging economies and, not coincidently, with growing space programs. At least one optimistic Western forecast even gave the Russian economy a chance to overtake Germany's in 2029 and Japan's in 2037.

Russian economic collapse leads to internal and nuclear wars.

David, John Hopkins University, Political Science Professor ‘97

(Stephen R, 1997, John Hopkins university Political Science Professor World Politics “Internal War Causes and Cures” <https://muse.jhu.edu/journals/world_politics/v049/49.4er_brown.html> 7/6/11 BLG)

What then is at the root of civil conflict? It appears at first to be virtually everything. Thus, Brown identifies four broad sets of explanatory factors: structural (strength of the state, presence of ethnic minorities); political (the fairness of the political system, whether citizenship is ethnic or civic based); economic (health of the economy, stage of economic development); and cultural/perceptual (presence of discrimination against minorities, views groups have of themselves and others) (pp. 12-23). This list, while certainly accurate, suffers from two major drawbacks. First, it does not tell us anything new. It is hardly surprising the weak states that are plagued by ethnic animosity and face economic problems will be more prone to violence than states with a homogenous population, a strong government, and a healthy economy. Second, as Brown himself notes, while these factors may explain the underlying causes of internal war, they are less helpful in explaining what triggers domestic conflict. To a greater or lesser extent, these conditions exist everywhere. For those interested in a parsimonious explanation of why some states are afflicted by internal war and others not, these conditions disappoint. Brown does much better when he advances his own explanation for internal war. He argues that while mass-level conditions help explain which countries are vulnerable to internal war, elite-level forces are much more important in explaining the proximate causes of domestic conflict. Internal wars happen not because one people hates another, but rather because of the rational and deliberate decisions of "bad" leaders. Heads of state make decisions that lead to war because they are more interested in staying in power than in preserving the peace for their citizens. In looking to identify what allows bad leaders to drive their people to internal war in some places but not in others, Brown distills the many underlying causes of internal war to the two most important: a strong sense of antagonistic group history and mounting economic problems. When these factors come together with bad leaders, internal war can be expected. Where even one is absent, the likelihood of internal war is dramatically less.

Russians take jobs in the US 1/2

Russians leaving due to political and economic environment- better job opportunities like the plan drains scientists

Evans , freelance journalist and former Moscow business correspondent for the Times ‘11

(Julian, June 16 2011, Wall Street Journal Russia “Why Are They Leaving?” [http://online.wsj.com/article/SB10001424052748704816604576333030245934982.html 7/10/11/](http://online.wsj.com/article/SB10001424052748704816604576333030245934982.html%207/10/11/) BLG)

More and more young, educated Russians are talking about leaving Russia, to live in the U.S., Europe, Israel, Asia, or Latin America. The reasons are myriad: Whether it is the difficulty of setting up a business in Russia, the dearth of political freedoms, poor education or simply better jobs abroad, Russia's talent exodus is gaining momentum.

"We're expected to work 10 to 20 years to buy a flat, or five years to buy a car," says Mr. Gaaze. "There are no chances for promotion. It's very hard to set up your own business. Loans cost 20% to 30% a year, and the system is very regulated. The most secure job is to work for the government. But I've done that, and don't want to do it anymore."

The political analyst Dmitry Oreshkin caught the mood among the middle classes with a widely-quoted story in independent newspaper Novaya Gazeta in April. He claimed Russia was in the middle of another wave of emigration to rival that which occurred after the Bolsheviks came to power in 1917.

What is disturbing, according to Mr. Oreshkin, is that it is the "strongest and most gifted people" who are leaving Russia, because they feel they have no place in the state capitalist model constructed by prime minister Vladimir Putin over the last decade. In an online poll of 7,237 Novaya Gazeta readers, 62.5% said they were considering leaving because of discontent with the economic and political regime.

Surveys by the Levada Center, an independent research institute in Moscow, find a similar broad trend. The percentage of respondents who were thinking about living abroad rose from 42% at the beginning of Mr. Putin's presidency to 44% in 2009, despite the rise in living standards during that period.

The vast majority of those who admitted wanting to leave were under 35 years old, lived in a major city, and spoke a foreign language. While only making up a small percentage of Russia's total population, this demographic also represents the country's economic, political and cultural future.

Russians take jobs in the US 2/2

Russia has reversed the brain drain it once suffered, but still remains susceptible to brain drain from the space industry

Zak, space reporter for BBC, 11 (Anatoly, IEEE Spectrum, and Air & Space Smithsonian, “The Russian space industry at the turn of the 21st century”, May 20th, 2011, <http://www.russianspaceweb.com/centers_industry_2000s.html>) PG

After being one of the most prestigious sectors of the Soviet economy, **the space industry lost much of its luster for the young work force entering the job market during the 1990s. As a result, space companies struggled to maintain the high professional qualification of their workers and engineers.**

One of the critical factors which led to the loss of the qualified personnel was low wages within the industry. **Although the times when workers were going without pay for months had been overcome, rocket companies still lagged behind other sectors of the Russian economy in pay rates**. According to the report by the Tsiolkovsky Academy of Astronautics, the average monthly pay within the space industry was 6,108 rubles per month. For comparison, gas producers would pay their employees on average 13,500 rubles per month, while the oil industry would compensate its workers with 24,800 rubles. The situation started improving slowly in the first decade of the 21st century.

In 2008, the average salary at TsSKB Progress was reported to be 13,000 rubles. A medium-level technician at NPO Lavochkin would earn 9,000-12,000 rubles per month. A high-level engineer with experience would be reportedly offered 16,000 - 20,000 rubles. During a work assignment in [Baikonur](http://www.russianspaceweb.com/baikonur.html), a worker would reportedly earn $55 a day, while their French counterpart earned 800 Euro!

**The Russian space industry made at least some attempts to attract former employees lost in the previous decade. In 2009, a poster on the online forum of the Novosti Kosmonavtiki magazine quoted job postings at the Proton-PM propulsion development company in the city of Perm, offering re-training and retaining of an uninterrupted work experience -- an important incentive for former workers. The lowest machinist salaries were hovering around 25,000 rubles per month.**

Russia – Human Missions key to Industry

Human space missions are key to Russia’s space industry

Zak, Air & Smithsonian space author, ‘11

(Anatoly, Russian Space Web, “Russian Space Program in the 2010s”, 6/8/11, <http://www.russianspaceweb.com/russia_2010s.html>, accessed 7/2/11 BLG)

Traditionally, manned space flight remained one of the strongest areas of the Russian space program. With improved funding in the second half of 2000s, the Russian government started planning new goals for its cosmonauts, largely reflecting US efforts, including lunar expeditions. However, in February 2010, the Obama administration proposed to cancel the plan to return to the Moon within the Constellation program. The move could have a major implications (both positive and negative) for other space-faring powers, first of all Russia and Europe, for years to come. Russian space officials hurried to re-affirm the public that the crisis in the US would have no effect on the the nation's long-term plans. However, an overly ambitious program by Roskosmos to build a new launch center, introduce a whole new type of rockets in 2015 and a next-generation manned spacecraft in 2018 looked less and less realistic. Critics questioned the wisdom of committing to a decade-long development program, instead of upgrading the existing Soyuz spacecraft for lunar missions, which could be accomplished within a few years. Even RKK Energia, the country's main and only manned spacecraft developer, was weary of the agency's grandiose space plans. During 2010 and 2011, the company tried to convince Roskosmos to limit the mass of the next-generation spacecraft to 12 tons, thus enabling its launch on the medium-class vehicle based on the existing Zenit rocket and launch facilities in Baikonur. The company was also quietly seeking commercial collaboration with an emerging crop of manned spacecraft developers in the US.

Russia – Aerospace Key

Unique breakthroughs are key to Russian competitiveness in the space sector.

Panteleev, Aviaport Chief Editor, No Date

Oleg, Russianavia.net “Media Center- Interviews” <http://www.russianavia.net/index.php#state=InterviewDetail&id=61> 7/6/11 BLG)

In order to estimate the competitiveness of Russian aerospace industry against the foreign aircraft, we should first keep in mind its current position in general. Back in early 90s it became clear that State participation in this sphere was shrinking dramatically… As a result, the Soviet heritage in civil aviation is two mass-produced long-haul modern aircraft: Il-96 and Tu-204. Regional turbojet Il-114, that was to replace An-24 for local flights in the European part of the USSR, did not go into mass production… efforts are being made to resuscitate the program. It was not much easier for the aircraft that appeared later, in independent Russia. For Tu-334, a short-haul aircraft, and the amphibian aircraft Be-200, mass production was not developed even after its certification was completed. The next aircraft, regional jet An-148 with a type certificate, was a joint development of Russia and Ukraine with mass production in Voronezh and Kiev. Finally, the short-haul Sukhoi SuperJet 100, created under broad international cooperation, is being tested and has not yet been certified. All the mentioned aircraft have a very high technological level and flight characteristics whereas their actual efficiency, that is determined by sales financing and after-sale service, is lower than that of the world aircraft construction leaders. That means that the aircraft are competitive as such but not as market products. Competitiveness of Russian aviation equipment will depend on whether it will be possible to concentrate on the chosen segments and projects. As a matter of fact, up to now the federal budget has been the most important but limited source of financing for all the developments. Vertically integrated structures covering the whole production cycle have been created in the industry in Russia to increase its competitiveness and, to some extent, stop the internal competition… However, it is still too early to discuss elimination of internal competition and concentration on the priority spheres. Today the largest problems of the Russian aviation are a long period of stagnation, low financing and disintegration; the main challenge in future will be the absence of unique breakthrough products that could overcome the foreign samples in terms of integral efficiency, although Russia has not yet lost the necessary production potential.

The aerospace industry is key to Russian competitiveness and leadership

Ivanov, Unified Aviation Corporation, Chairman ‘06

(Sergei, 12/14/2006, Izvestia, WPS Russian Media Monitoring Agency “DEFENSE MINISTER SERGEI IVANOV DISCUSSES THE UNIFIED AVIATION CORPORATION” <http://www.wps.ru/en/pp/story/2006/12/14.html> 7/6/11 BLG)

First of all, air power is becoming increasingly important for national security. Secondly, over the past century, the aviation sector's needs have stimulated the development of advanced technologies - serving as a driving force in the development of science and industry. And Russia must not fall behind other countries in this field. Thirdly, aircraft-building is one of the few high-tech sectors in which Russia is still competitive, despite the hardships of the 1990s. Aviation offers the primary opportunity for implementing the innovation-based development model which is the only alternative to the dead-end path of an economy dependent on raw materials exports. Finally, Russia's vast expanses require us to develop civil aviation as the leading form of transport - in some areas, the only form. Extricating this complex system from its state of crisis and placing it on a path of steady development is only possible if we adopt a systematic approach, based on a common concept and substantial powers. This is a state-level task. Actually, I recently requested President Putin to issue instructions for preparing a decree that will include the OAK on the list of Russia's strategic enterprises. We plan to have the corporation operating at full capacity by 2015.

Russia – Space Leadership

**Space Tech key to the Russian economy, leadership, and solving for proliferation.**

Logsdon and Millar, George Washington University, Professor Political Science and International Affairs, Professor of Economics ‘01

(John M. Logsdon and James R. Millar, February 2001, “U.S. -Russian Cooperation in Human Space Flight Assessing the Impacts” <http://www.gwu.edu/~spi/assets/docs/usrussia.pdf> 7/6/11 BLG)

Russian participation could advance U.S. goals in the former Soviet Union and strengthen President Boris Yeltsin. First, it would provide hard currency for the Government. Second, Russia is struggling to cling to the vestiges of its superpower status, and hardliners, in their, fight against reforms, have played on the people's fear of diminished international standing. Remaining active in space exploration could help Russia maintain technological prestige while it reduces its nuclear arsenal. The project would allow Russia's talented scientists and engineers to escape from the confines of the military and intelligence apparatus. They could show American experts the full range of their skills and technology. This could open the doors to legitimate financial opportunities at a time when many are tempted by lucrative projects that would enhance the military capabilities of third world despots.3 This listing of benefits to U.S. interests from expanded U.S.-Russian space cooperation closely parallels the rationales used by pro-cooperation advocates inside the U.S. government as the debate over expanded cooperation took place in 1992 and 1993.

Russia – Space Leadership

Lack of space leadership leads to Russian instability and nuclear war.

Lambert and Miller, 86th Airlift Wing Vice Commander ‘97

Stephen P and David A, April 1997, INSS Occasional Paper 12

Regional Series USAF Institute for National Security Studies “Russia’s Crumbling Tactical Nuclear Weapons Complex: An Opportunity for Arms Control” <http://www.usafa.edu/df/inss/OCP/ocp12.pdf> 7/6/11 BLG)

To compensate for Russia’s current conventional weakness, Russian strategists have explicitly sought to “extend the threshold for escalation downward,”28 thereby increasing the likelihood of tactical nuclear release in the face of hostilities. Thus there are two distinct concepts at work: (1) the procedure of pre-delegating the launch codes; and (2) the operational doctrine of lowering the nuclear threshold. These trends are corroborated by interviews with Russian officials familiar with nuclear weapons strategies. Dr. Nikolai Sokov, an expert on the Soviet delegation to START I as well as other US-Soviet summit meetings, affirms that with such a doctrine in place, one “cannot rule out that a local commander could individually take the authority to launch a weapon.” 29 The assumption that the Russian weapons control system is more stable during peace-time is also suspect. Due to the lack of technical safeguards, especially on air-delivered weapons (cruise missiles and gravity bombs), individual attempts to acquire these weapons even during times of peace are possible. Moreover, the lack of adequate locking mechanisms on these weapons would then make them deliverable, with a full nuclear yield, even without launch authorization.

Russia - Now Key

Now is key for Russia’s space program- Phobos mission proves

Zak BBC News, Correspondent ‘10

(Anatoly Zak, June 28 2010, BBC News Science & Enironment “Difficult Rebirth for Russian Space Science” <http://www.bbc.co.uk/news/10414237> 7/6/11 BLG)

Only weeks before the promised launch of the mission, Russian scientists informed their colleagues abroad that Phobos-Grunt would have to wait for the next available launch window to Mars at the end of 2011. An additional two years gave Russian engineers and scientists some breathing room to sort things out and finally make it right. NPO Lavochkin's new head, Viktor Khartov, was on hand at the Grand Palace exhibit to describe a renewed effort to launch Phobos-Grunt in 2011. The retirement of Mr Khartov's predecessor last January was widely seen as fall-out from the failure to launch the mission on time. A veteran space engineer, Mr Khartov told BBC News that despite all previous problems, Phobos-Grunt had nowhere to go but to Phobos in 2011. "I can't claim that we can achieve a 100% success probability, the mission is very complex and it has many high-risk aspects… but we are working in this direction," Mr Khartov said. Viktor Khartov recently took over as the new head of the mission With the new launch deadline looming some 17 months from now, Russian engineers have their work cut out for them. It would be the first Russian space probe to go into deep space since 1988, not counting the launch of a single Mars mission in 1996, which failed immediately after reaching Earth orbit. A difficult undertaking by any account, the Phobos-Grunt became a major test for the Russian space science, which is still emerging from almost two decades of financial collapse and brain drain. According to Mr Khartov, out of 4,500 employees at NPO Lavochkin, 700 people were between the age of 70 and 80. In the meantime, 700 people were considered young specialists. "I can't let this old generation go before they pass their experience to new people," Mr Khartov says, "There is no secret, this is difficult." The generation gap, however, was not an excuse for another delay, the NPO Lavochkin chief explained. The funding was now stable and it was enough time to take care of all challenges facing the project.

Russia needs to move now to maintain space leadership

Isachenkov, Associated Press Writer, ‘11

(Vladmir Isachenkov, April 12, 2011 The Washington Times “Medvedev: Space will remain a key Russian priority” <http://www.washingtontimes.com/news/2011/apr/12/medvedev-space-will-remain-a-key-russian-priority/?page=all#pagebreak> 7/6/11 BLG)

MOSCOW (AP) - Russia must preserve its pre-eminence in space, President Dmitry Medvedev declared Tuesday on the 50th anniversary of the first human spaceflight by cosmonaut Yuri Gagarin. The statement followed warnings by another cosmonaut that Russia risks losing its edge in space research by relying solely on Soviet-era achievements and doing little to develop new space technologies. Gagarin’s 108-minute mission on April 12, 1961, remains a source of great national pride, and Russia marked the day with fanfare resembling Soviet-era celebrations. Schools had special lessons dedicated to Gagarin, billboards carried his smiling face and national television channels broadcast a flow of movies and documentaries about the flight. “We were the first to fly to space and have had a great number of achievements, and we mustn’t lose our advantage,” Medvedev said during a visit to Mission Control outside Moscow. On Monday, Svetlana Savitskaya, who flew space missions in 1982 and 1984 and became the first woman to make a spacewalk, harshly criticized the Kremlin for paying little attention to space research after the 1991 collapse of the Soviet Union. “There’s nothing new to be proud of in the last 20 years,” said Savitskaya, a member of Russian parliament from the Communist Party. Russia has used the Soyuz and Progress spacecraft, whose designs date back to the 1960s, to send an increasing number of crew and cargo to the International Space Station. Russia’s importance will grow even more after the U.S. space shuttle Atlantis closes out the U.S. program this summer, leaving the Russian spacecraft as the only link to the station. But Savitskaya and some other cosmonauts have warned that Russia has done little to build a replacement to the Soyuz and could quickly fall behind America after it builds a new-generation spaceship.

Russia - **AT: Deterrence Solves**

**US – Russian deterrence fails**

Arbatov, Center for International Security at Moscow’s Institute of World Economy and International Relations, head ’05

(Alexei, January/February, Arms Control Association “Superseding U.S.-Russian Nuclear Deterrence” <http://www.armscontrol.org/act/2005_01-02/Arbatov> 7/10/11 BLG)

It is clearly becoming less productive to depend on deterrence as the main guarantee for preventing a nuclear war. The nuclear powers, the largest non-nuclear states, and the countries supplying nuclear materials and technology must develop a new approach for preventing proliferation and, even more importantly, convincing countries to disarm (as in Brazil, Argentina, South Africa, Iraq, and Libya).

As a first step, the great powers, primarily the United States and Russia, must improve their military and political relations in the area of nuclear weapons. Not enough has been done to minimize the mutual suspicion and ambiguity that exist between the major nuclear powers, even if only latently. This has been reinforced and continually perpetuated under the mutual nuclear deterrence paradigm, especially as a result of the disruption of the system of agreements dealing with arms limitation and reduction. This lack of trust seriously impairs deep cooperation between the powers in all aspects of nuclear nonproliferation.

During the Cold War, full-fledged cooperation on nuclear nonproliferation was impaired by confrontation and global rivalry between the two superpowers, which undoubtedly predominated over other individual links of cooperation. The cessation of the Cold War in principle removed the main impediment to cooperation between the two countries. Nevertheless, rather than turning to further disarmament steps, the United States, no longer worried about the Soviet threat, has turned its attention instead to such pressing concerns as new states pursuing nuclear weapons and the discovery of a nuclear black market.

Russia AT – No US/Russia war

Russia and the US would go to war

Blomfield, Daily Telegraph Moscow Correspondent, ‘07

(Adrian, July 17, The Telegraph “Retired generals predict US-Russia war” <http://www.telegraph.co.uk/news/worldnews/1557726/Retired-generals-predict-US-Russia-war.html> 7/11/11 BLG)

"The US is both laying the ground and preparing its military potential for a war with Russia," said Gen Leonid Ivashov, a former joint chief of staff.

"Anti-Russian sentiment is being fostered in the public opinion. The US is desperate to implement its century-old dream of world hegemony and the elimination of Russia as its principal obstacle to the full control of Eurasia."

The generals said the conflict would inevitably spark a third world war, but predicted it would be fought only with conventional weapons or "low impact" nuclear missiles.

Dismissed by some critics as the Cold War nostalgia of a handful of Soviet dinosaurs, such opinions nevertheless reflect a growing mood of nationalism both within the Kremlin and among many ordinary Russians wistful for lost superpower status.

Engaged in a bitter dispute with Washington over its plans to erect a missile defence shield in central Europe, Vladimir Putin has increasingly used the kind of anti-American rhetoric many assumed had disappeared with the Cold War.

Once more casting the United States as Russia's main threat, the Russian president, a former KGB spy, has accused Washington of "diktat" and "imperialism" - even going so far as to liken America to the Third Reich.

Russia - AT: Russia **Has No Nukes**

Russia has 2,427 deployed nuclear weapons

Krieger , Nuclear Age Peace Foundation , Founder‘11

(David, June 9, Nuclear Age Peace Foundation, “How Many Nuclear Weapons Still Threaten Humanity?” <http://www.wagingpeace.org/articles/db_article.php?article_id=252> 7/10/11 BLG)

The Stockholm International Peace Research Institute (SIPRI) is one of the most authoritative institutes in the world on issues of war and peace. The recently-released 2011 SIPRI Yearbook provides estimates of the number of nuclear weapons in the world. It finds that only four countries have deployed nuclear warheads, by which it means warheads placed on missiles or located on bases with operational forces. Two of these countries are the US and Russia, which have 2,150 and 2,427 deployed nuclear weapons, respectively. Under the terms of the New Start agreement, ratified in 2010, each country is required to reduce the number of deployed strategic warheads to 1,550 by the year 2017. The other two countries with deployed nuclear weapons, according to SIPRI, are the UK with 160 deployed weapons and France with 290 deployed weapons.

The total number of deployed nuclear weapons in the world stands at 5,027 in 2011. Of these, SIPRI estimates that some 2,000 are kept on high operational alert, ready to be fired within moments of an order to do so.

Russia’s Military Expanding

Russia is expanding its military now

Davis, The Gazette, ‘11

(Jeff, July 6, The Gazette, “Russia launches Arctic expedition, beefs up military presence” <http://www.montrealgazette.com/news/Russia+launches+Arctic+expedition+beefs+military+presence/5060448/story.html> 7/11/11 BLG)

A Russian scientific expedition — led by a nuclear-powered icebreaker — has set sail on a mission to solidify Russia's claim to a resource-laden tract of the Arctic seafloor, in a summer that will see intensified military activity in the high Arctic.

Russia has also announced it will station two new Arctic warfare brigades north of 60 degrees — a move that will expand Russia's northern military capabilities far beyond those of Canada.

The research vessel Academik Fyodorov will conduct a sub-sea mapping exercise of the Lomonosov and Mendeleev ridges in Russia's second mission to determine the boundaries of Russia's Arctic continental shelf.

If Russia's claims to these two ridges named for iconic Russian scientists is successful, they will gain more than one million square kilometres of Arctic territory.

In 2012, Russia will submit these and other data to a United Nations panel that will decide which nations own which sections of the Arctic seabed. The five Arctic nations — Canada, Denmark, Norway, Russia and the United States — are locked in a tight race to gather evidence to support their claims amid reports that global warming could leave the region ice-free by 2030.

"I expect that next year we will present a well-based scientific claim about expanding the borders of our Arctic shelf," Deputy Prime Minister Sergei Ivanov said in the northern town of Naryan-Mar, as the expedition set sail Wednesday.

"The expedition is equipped with modern equipment and everything necessary for a proper and scientific claim," he said told Russia's ITAR-TASS news agency.

The Arctic seabed is believed to hold 13 per cent of the world's undiscovered oil reserves and 30 per cent of the gas resources yet to be found, according to the U.S. Geological Survey.

Russia will do more than conduct mere scientific missions in the Arctic this summer.

The Russian military is putting together two brigades of specially trained Arctic troops to protect Russian interests, Russian Defence Minister Anatoly Serdyukov announced on July 1. A brigade typically consists of 3,000 to 5,000 troops.

**Russia’s Military Expanding**

**Russia plans to spend $730 billion by 202 on its military**

Ardayeva, FSN Moscow Correspondent ‘11

(Anya, July 8, Defence Professionals “Russia to Spend $730 Billion on New Weapons“http://www.defpro.com/daily/details/849/?SID=92e05482301377d4f6f0d9787b502a99 7/11/11 BLG)

Russia plans to spend $730 billion by 2020 to upgrade and re-arm its military. That’s nearly $20 million a day.

The new state arms procurement program includes purchases of eight missile-carrying strategic submarines equipped with Bulava ballistic missiles. Plus 600 aircraft and S-400 and S-500 air defense systems. The arms purchases, both at home and abroad, would allow Russia to raise the proportion of modern weaponry in its arsenal to 70 percent by 2020.

Independent military analyst Pavel Felgenhauer says upgrading the strategic nuclear forces is at the top of the list, but the rest of the military needs a boost as well.

“Then there’s of course the air force, the air defense system, the army – actually, everything needs re-arming because right now they say that [only] 10-15 percent of our weaponry is modern,” Felgenhauer noted.

BUDGET INCREASE

As Russia exports weapons worth billions of dollars abroad, the country’s armed forces are mostly equipped with outdated Soviet-era weaponry. In the last 10 years the government has increased the defense budget tenfold, says Felgenhauer, but still failed to bring the military up to date.

\*\*AT Brain Drain Good\*\*

AT: Strengthens US Space Industry

US Monopoly on space and science hurts other countries economically and politically- UN Conference says

Space Daily ‘99

(No Author, SpaceDaily, 7/20/99, “Space Widening technology Gap” <http://www.spacedaily.com/news/unspace-99b.html>, accessed 7/5/11 BLG)

A monopoly on space science would bring power and wealth to privileged nations and cause hardship and deprivation to others, the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III) was warned this afternoon by the head of Indonesia's delegation to the Conference, Harijono Djojodihardjo. He proposed creation of a United Nations fund for large-scale educational opportunties, particularly in developing countries that would focus on space technology for social and economic development applications. Norway's Ambassador, Helga Heres, also expressed concern about the widening technology gap between rich and poor nations. Unless developing countries were given access to the technologies being discussed at the Conference, and on an equitable basis, they were likely to be further marginalized. At the same time, she added, developing countries must also develop their own capacities to use those technologies. On the same theme, the Ambassador of Uganda, Semakula Kiwanuka, said the abundant space-related benefits should be made available to developing countries. Africa needed a critical mass of men and women who were capable of utilizing and building on existing knowledge. An enabling political and economic environment was critical in attracting investment not only to produce wealth but also to produce and retain national capacity and prevent the "brain drain".

Brain Drain makes peaceful space impossible.

Spacedaily ‘99

(No Author, SpaceDaily, 7/20/99, “Space Widening technology Gap”, <http://www.spacedaily.com/news/unspace-99b.html>, accessed 7/5/11 BLG)

Also this afternoon, several speakers emphasized the importance of using space for peaceful purposes. Alexander Medvedchikov, the Deputy Director- General of the Russian Federation's Space Agency, stressed that space must not be used as an arena for rivalries or a testing ground for new weapons. Ensuring that space was not militarized required coordinating the world community's efforts in the peaceful uses of outer space. The United Nations was the only entity capable of assuming that task. Only the United Nations could translate the will of the international community into action, solve global problems such as environmental pollution and overpopulation, and ensure the adoption of a code of space law. New norms of space law must be created to take into account the participation of industry and other actors in space activities. Existing legal norms were created when governments were the only players, but that was no longer the case.

AT: Brain Circulation

Restricted sector like aerospace do not experience circulation

Harvey, University of Sydney - Faculty of Economics and Business - School of Business, 8

(William S., “BRAIN CIRCULATION? British and Indian scientists in Boston, Massachusetts, USA”, Asian Population Studies, Vol. 4, No. 3, p. 299, CW)

The frequency of business travel is, instead, likely to be affected by the sector. In the pharmaceutical and biotechnology sectors, for example, it is costly, time-intensive and complicated to collaborate because scientists are often restricted to obtaining results in the laboratory. In contrast, in the information and communication technology (ICT) sector, engineers can write software and programmes remotely using laptops. As a result, scientists are more geographically restricted to where they collaborate compared to information technology (IT) workers. Yet, although differences in sector might explain why Saxenian’s (2006) Indian sample travelled more to their home country than my Indian sample, it does not explain why British and Indian scientists in Boston differed in how frequently they travelled to their home countries for business purposes.

Brain Circulation Fails- ¾ Of scientists don’t make investments in their home country

Harvey, University of British Colombia, Department of Geography ‘08

(William S, November 2008, Asian Population Studies Vol. 4 No. 3 “Brain Circulation? British and Indian scientists in Boston Massachusetts, USA” p.305 BLG)

The type and frequency of business information that is exchanged between highly skilled migrants and people in their home countries is arguably a significant indicator of their desire to invest in those countries. In addition, the social relationships that are formed when highly skilled migrants travel to and collaborate with organisations in their home countries are also an important indicator of brain circulation. The fact that British and Indian scientists are investing in their home countries in a limited way, however, questions the full extent of brain circulation. Although the literature has emphasised the importance of brain circulation, I suggest that scholars focus on brain drain as well because it is also germane in the context of highly skilled migration.

In terms of the level of personal investments in their home country, British and Indian scientists have contributed to brain circulation only in a limited way. At least three- quarters of British and Indian scientists have not made any personal investments in their

home country. Although fewer Indian respondents have made investments in their home country, those who invested have taken more advanced procedures to contribute to the economy of India, compared to the contribution that British scientists have made to the UK economy. In addition, 13 per cent more Indian than British scientists considered making future investments in their home country and showed a much greater desire to contribute to the economic development of their home country. In short, Indian scientists were much more positive about the professional opportunities developing in India compared to British scientists who were predominantly negative about the professional opportunities available in the UK.

AT: Brain Circulation

Developing countries vs. Developed countries brain circulation

Harvey, University of Sydney - Faculty of Economics and Business - School of Business, 8

(William S., “BRAIN CIRCULATION? British and Indian scientists in Boston, Massachusetts, USA”, Asian Population Studies, Vol. 4, No. 3, p. 297-299, CW)

Most British respondents exchanged professional information with people in their home country highly infrequently. Table 1 shows that the mean British respondent, for example, exchanged job information once a year, business information three times a year and technology information three times a year. Furthermore, the standard deviation was high for all three sets of results, showing a high dispersion of results from the mean. Many British respondents said that they exchanged zero information about jobs (58 per cent), business (40 per cent) and technology (33 per cent), while a small proportion (one per cent for jobs, six per cent for business and seven per cent for technology) exchanged such information at least 12 times a year (see Table 2). In short, most British respondents exchanged little professional information with people in the UK. It is argued here therefore that they would be less likely to contribute to brain circulation. Indian respondents exchanged professional information with people from their home country more frequently than British respondents. Table 1 shows that the mean Indian respondent exchanged job information four times a year, business information nine times a year and technology information 12 times a year. Again, the standard deviation of results was high. Many Indian respondents exchanged zero information about jobs (48 per cent), business (54 per cent) and technology (35 per cent), while a moderate proportion (10 per cent for jobs, 12 per cent for business and 17 per cent for technology) exchanged such information at least 12 times a year (see Table 2). Although most Indian respondents exchanged little professional information with people from India, a significant proportion of respondents exchanged information highly frequently. The results show that Indian scientists exchange more professional information with people in their home country than British scientists. This suggests that transnational social networks are more important for professional purposes for Indian scientists than British scientists. Insufficient research has been conducted on whether highly skilled migrants from developed and developing countries differ in the extent to which they participate in transnational social networks for job, business, and technological purposes. The evidence from this research indicates that highly skilled migrants from developing countries exchange more professional information with people in their home countries because of growing economic opportunities and because they want to maintain the option of returning there in the future. My sample of British and Indian scientists showed similar although less frequent trends to Saxenian’s (2006) sample in that a small, but significant number of highly skilled migrants are talking about professional opportunities with people in their home country. Saxenian shows that 80 per cent of her sample of foreign-born engineers and professionals in Silicon Valley exchanged job, business, and technological information with professionals in their home country, with more than 20 per cent of her Chinese and Indian sample exchanging such information on a regular basis (Saxenian 2006, p. 347). This is important because it suggests that highly skilled migrants that maintain transnational social networks with different professionals in their home country are more likely to contribute to brain circulation.

AT: Brain Circulation

Geographically brain circulation fails and slowly become brain drain

Harvey, University of Sydney - Faculty of Economics and Business - School of Business, 8

(William S., “BRAIN CIRCULATION? British and Indian scientists in Boston, Massachusetts, USA”, Asian Population Studies, Vol. 4, No. 3, p. 295, CW)NOTE: jones: attended the school of geography at the University of London; Saxenian: professor in the school of information at UC Berkeley; Iredal et al.: Doctor of Philosophy 1986, School of Economic & Financial Studies, Macquarie University.

Although there has been some academic analysis on the importance of brain circulation (Vertovec 2002; Iredale et al. 2003; Saxenian 2006; Larner 2007), there is relatively little understanding of how extensively highly skilled migrants are travelling between sending and receiving countries for business and work purposes and whether this level of travel impacts upon investments they make in their home countries. Iredale et al. (2003) argue that highly skilled migrants cannot drive economic change, but will start to invest in their home countries when change has already started to take place. Jones (2007, p. 235) explains that acquiring new businesses in overseas locations is a difficult but important strategy for law firms in London because such business networks rely on face- to-face contact in fostering trust relationships between lawyers and clients, as well as for maintaining an ongoing co-presence in legal services. This suggests that social networks are critical in influencing overseas investments of firms and highly skilled migrants. Brain circulation may occur because of both spatial and temporal factors. On a spatial level, migrants may invest in a region owing to its geographic characteristics such as a good supply of skilled labour, low rental costs, and a lack of government restrictions involving expanding businesses. However, brain circulation is also a process about time because people migrate at particular periods of their lives (Roberts 1995). Although Saxenian (2006, p. 347) demonstrates how 40 per cent of her respondents travel to their home countries at least once a year for business purposes and five per cent travel at least five times a year for business purposes, many of her respondents are not participating in brain circulation: Taiwanese respondents stood out in this regard, with only 36 percent reporting that they never traveled home for business, compared to 56 percent of Chinese and 48 percent of Indian respondents who never traveled home. (Saxenian 2006, p. 348, original emphasis) Thus, it seems reasonable to assume that there is only a limited level of brain circulation that people can participate in if they are only returning to their home country for business once a year (40 per cent of Saxenian’s sample). In short, the majority of Saxenian’s (2006) respondents are not travelling to their home countries more than once a year for business purposes. Iredale et al. (2003) also argue that countries such as China, Bangladesh and Vietnam are experiencing significant brain drain abroad, although Taiwan is currently experiencing brain circulation. Therefore, to what extent can we theorise more generally that brain drain is shifting to brain circulation?

AT: Brain Circulation – No India

Proximity and historical ties between the US and the UK allow for British scientists to travel home more often than Indian scientists

Harvey, University of Sydney - Faculty of Economics and Business - School of Business, 8

(William S., “BRAIN CIRCULATION? British and Indian scientists in Boston, Massachusetts, USA”, Asian Population Studies, Vol. 4, No. 3, p. 299, CW)

British and Indian scientists varied significantly in the frequency that they travelled to their home countries for business purposes. The average British respondent and the average Indian respondent had travelled to the UK and India six times and once, respectively in the last three years. However, the dispersion of results was high. Table 3 shows that 31 per cent of British respondents and 81 per cent of Indian respondents travelled to their home countries zero times in the past three years for business purposes. In comparison, 13 per cent of British respondents and one per cent of Indian respondents had travelled to their home countries at least 15 times in the last three years. These differences are important because 50 per cent more British than Indian scientists are travelling to their home country for business purposes. This suggests that British scientists are given more opportunity to travel to their home country for business than Indian scientists. It is questionable how important geographic proximity to the home country is in influencing business travel. Boston, for example, is relatively close to London (a distance of 3275 miles) and there are important economic, social and historical ties between both cities. As a result, there are several airlines that operate between both cities, and this reduces the cost of air travel and facilitates trans-Atlantic business collaborations. Having said this, five per cent of Saxenian’s (2006) Indian sample in Silicon Valley (a distance of 8712 miles from Bangalore) compared to one per cent of my Indian sample in Boston (a distance of 8135 miles from Bangalore) have travelled more than 15 times in the last three years to India for business purposes. Therefore, geographic proximity is not always important in influencing business travel because the types of highly skilled migrants who travel for business purposes (e.g. Argonauts) are able to afford the higher costs of travel.

\*\*\*Aff\*\*\*

Non Unique – Hiring Now

Even with the cuts NASA’s future looks bright – new programs in the SQ make hiring inevitable

Space Report 11

(The Space Report is the definitive overview of major global space developments over the past year: “4.0 Workforce and Education” 2011 <http://www.thespacereport.org/files/The_Space_Report_2011_exec_summary.pdf> MLF 7-6-11)

Although the space industry faces challenges due to programmatic changes and demographic factors, the ingredients exist for future successes. New commercial ventures and national space programs have the potential to generate interest that will draw talented individuals into the space workforce. The nature of this workforce may well be more diverse than it has been in the past, requiring new management approaches to ensure that innovation continues to grow and flourish.

Aerospace engineers on the rise now

McAward, Kelly Engineering Resources, Vice President and Product Leader ‘10

(Tim, September 1 2010, Kelly Engineering Resources, Vice President and Product Leader Aerospace Engineering Online “The Future of Engineering is Here” <http://www.sae.org/mags/aem/8789> 7/6/11 BLG)

Throughout the past few decades, four occupational specialties have generally combined to represent nearly half of the United States engineering workforce. To date, each of these specialties still attract a majority of American engineers: civil, mechanical, industrial, and electrical. Yet, even though 49% of all American engineers are employed by organizations that specialize in one of these four disciplines, more engineering students have either enrolled in the following five programs, or have attained degrees in one of these niche disciplines, than in the “Big Four” occupational specialties, in the last five years: • Aerospace: 30% increase in the number of graduates • Biomedical: 50% increase in the number of graduates • Chemical: 50% increase in undergraduate enrollment • Environmental: 100% increase in undergraduate enrollment • Petroleum: 100% increase in undergraduate enrollment and in the number of students graduating. In the meantime, although the manufacturing sector continues to employ the largest percentage of American engineers, many service-based industries, including professional, scientific, and technical, have begun to hire an increasing number of engineers as well. According to the Bureau of Labor Statistics Occupational Outlook Handbook for 2010, about 30% of all engineering professionals currently work in one of these industries. If engineers are not employed within the manufacturing sector or in service-based industries, they generally work for federal, state, or local governments, within a variety of capacities, including the U.S. Department of Defense, U.S. Department of Transportation, or U.S. Department of Energy; the National Aeronautics and Space Administration (NASA); or highway and public works departments.

No Link – Security Restrictions

Security clearance restriction prevent foreign hires

Aerospace Industries Association 8

(“Launching into Aerospace: Industry’s Response to the Workforce Challenge”,p.2, <http://www.aia-aerospace.org/assets/workforce_report_1_sept08.pdf>) access 7/8/11

While other industrial sectors can outsource labor to foreign workers, security requirements dictate that most U.S. aerospace and defense systems must be developed in this country by U.S. citizens. Thus, the need for home-grown technical talent is particularly acute for the aerospace industry.

Citizenship requirements in aerospace industry prevent foreign hiring

Aerospace Industries Association 8

“A Special Report: Launching the 21st Century: American Aerospace Workforce”, December,

<http://www.aia-aerospace.org/assets/report_workforce_1208.pdf>) access 7/8/11

• Security Clearances. The United States produced 122,450 total engineering and science graduates in 2007, but less than two-thirds are eligible for high-level security clearances based on citizenship.11 While other industrial sectors can outsource labor to foreign workers, security requirements dictate that most U.S. aerospace and defense systems be developed in this country by U.S. citizens. Thus, the need for home-grown, U.S.-developed technical talent is particularly acute for the aerospace industry. According to the Interagency Aerospace Revitalization Task Force, there are two major issues associated with security clearance requirements: clearable talent and clearance process portability.

No Link – Export Controls

No Link - Export controls prevent hiring foreign skilled workers

Taylor Industrial Base Planning Program Mgr. and Bolton Trade & Industry Analyst 7 (Alan and Jason, “Defense Industrial Base Assessment: U.S. Space Industry FINAL REPORT” 8-31 2007 <http://www.bis.doc.gov/defenseindustrialbaseprograms/osies/defmarketresearchrpts/exportcontrolfinalreport08-31-07master___3---bis-net-link-version---101707-receipt-from-afrl.pdf> MLF 7-6-11)

While the space workforce has grown, the space marketplace currently experiences a lack of qualified candidates in many skills. Based on the survey responses, export controls appear to affect the hiring of foreign workers regardless of whether the products had commercial or military applications. One Tier 1 company reported: “After several experiences, we do not hire foreign nationals. This prohibition has a serious deleterious impact on our hiring practices, particularly since there is such a dearth of qualified domestic personnel.″ Another Tier 1 company reported: “Foreign nationals comprise a growing segment of the engineering talent pool. Export controls create significant challenges to a technology company's ability to maximize a foreign employee's expertise while maintaining rigorous control and accurate records on release/export of technology to the employee. Hiring a foreign national requires: an export license, a Technology Control Plan, special training in export control compliance, facility modifications, computer network architecture modifications, and escorting and monitoring the employee. Because of these requirements, the hiring of foreign nationals is infrequent unless there is a highly specialized capability that cannot be met by recruiting a U.S. citizen.″

Export control restrictions govern employing foreign nationals in aerospace

Proctor, et al, Manager at KPMG International, 9

(Melissa, George Zaharatos, Senior Manager - Trade & Customs Services at KPMG and Heidi Miller, Senior Manager at KPMG , KPMG is a global network of professional firms providing Audit, Advisory and Tax services , “Innovating Aerospace and Defense: Road Map to US Export Compliance from Design to Realization”, Presented at 2009 Aerospace Industries Association/Supplier Management Council, September, <http://www.aia-aerospace.org/assets/smc_wp-export_compliance.pdf>) access 7/9/11

To safeguard the national security, foreign policy, antiterrorism, and nonproliferation objectives of the U.S. government, U.S. companies are required to understand and comply with the export laws and regulations when employing foreign nationals, conducting joint research and development (R&D) projects in multiple countries, shipping goods abroad, and engaging in business activities on a global basis. Export compliance alone plays a key role in almost every aspect of the life of an A&D article—literally from the cradle to the grave. Successful A&D companies make a practice of considering U.S. export compliance from the moment that a new article first emerges as an intangible design concept, through the production and development stage, to the sale and delivery of the article to the end customer. Downplaying the importance of this key factor can often be disastrous for a company's well-being, in terms of both severe financial consequences and injury to its corporate reputation. The following examples of the fictional companies ACME Aerospace, ACME Defense and ACME Components illustrate the vital role that export compliance plays in all facets of A&D activities. Any resemblance to actual companies or events is coincidental. A leader in the production of turbofan engines. ACME Aerospace intends to make significant changes to its current engine design to produce even greater thrust performance and reduce fuel consumption further. ACME Aerospace would like engineering teams in the United States, its facility in India (ACME India), and an unrelated subcontractor in China to collaborate on this new initiative. At first glance, it may seem odd to look for an export transaction in the above-referenced example. However, export transactions take many different forms. An export is defined as the transfer of goods, software, or technology from the United States.1 The term transfer covers not only physical shipments of articles but also the sharing of technology with foreign nationals both within the United States and abroad. In the above example, ACMEs U.S. engineering team- will effectively be exporting technology to its counterparts in Chins and India when it (1) provides technical support via telephone, fax, or e-mail; (2) sends or hand-carries technical drawings, prototypes or other product specifications abroad; (3) hosts joint meetings of the teams in the United States; and (4} works with ACME's foreign national employees in the United States ("deemed export").7

No Link – No Visas

Foreign hiring prevented by current visa restrictions

American Institute of Aeronautics and Astronautics Professional Member Education Committee 9

(“Recruiting, retaining, and developing a world-class Aerospace workforce: An AIAA Information Paper”,

<https://info.aiaa.org/SC/PMEC/Lists/Training%20and%20Workforce%20Development%20Information/Attachments/1/Retaining%20Aero%20Workforce%20031309%20v02.pdf>) access 7/9/11

If talented young engineers are not recruited, retained, and developed to replace the workforce generation that is near retirement, then the U.S. stands to lose the valuable economic and critical national security benefits of the domestic aerospace industry. As shown in Figure 22, large percentages of engineers are working outside the science and engineering professions. Engineering students burdened with college loans are seeking greener pastures. As shown in Figure 33, aerospace engineering salaries are low compared to other industries. If the U.S. is 1980, the number of nonacademic science and engineering jobs has grown at more than four times the rate of the U.S. labor force as a whole2. With a growing number of science and engineering jobs anticipated, the supply of visas set aside under law for “highly qualified foreign workers,” – 65,000 a year4 – is not enough. A decline in student, exchange, and temporary high-skilled worker visas issued since 2001 interrupted a long-term trend of growth. The number of student visas and of temporary high-skilled worker visas issued have both declined by more than 25% since FY 2001. These declines were due both to fewer applications and to an increase in the proportion of visa applications rejected2.To add to the supply pressures of science and engineering workers in our economy, there is increased recruitment of high-skilled labor, including scientists and engineers, by many national governments and private firms. For example, in 1999, 241,000 individuals entered Japan with temporary high-skill work visas, a 75 percent increase over 19925.

No Link - Domestic Workers Solve

The US is drawing college students into the aerospace industry

Leon, Senior Project Leader in the Economic and Market Analysis Center and Maloney, Director of the Economic and Market Analysis Center 7

(Michael A. and Patricia A, The State of the National Security Space Workforce, Aerospace Vol 8, # 1, spring, <http://www.aero.org/publications/crosslink/spring2007/01.html>, accessed 7/6/11, CW)

The aerospace industry as a whole is making a concerted effort to attract and retain new graduates. This is evident in the targeting of schools, through the establishment of programs that support research, pregraduation internships, and mentoring activities once a new hire is on the job. However, retention is a major problem, as the attrition rate in the 1–6 year range is approximately 2 times greater in the aerospace industry than in the overall new graduate population. Industry surveys reveal that approximately half of the current workforce perceives a worsening outlook in the aerospace industry because of the continuing retirement of scientists and engineers, and also believes that the hiring outlook is getting worse or steadily declining. Certainly, many factors contribute to this view—the general economic outlook, questions by young graduates about ethics in the defense industry, and the projected forecast of the space budget as a percentage of the entire defense budget, and how that could affect the aerospace job market. The U.S. government's response to these problems has been varied. The National Defense Education Act, originally instituted in 1958 and reinstituted in 2006, awards scholarships and grants to science and engineering students, with a requisite payback period in government service. This reconstituted program was originally funded at $10 million the first year, with an increase to $20 million the second year. It is hoped that this level of increase will continue until $100 million is reached. This does appear to be a strong force to begin addressing the challenge of increasing the number of students with the appropriate degrees into the industry.

US college international student rates are at an all time high

Fischer Senior reporter for the Chronicle of Higher Education 9

(Karin, the Chronicle of Higher Education, “Number of Foreign Students in U.S. Hit a New High Last Year”, 11/16/9, <http://chronicle.com/article/Number-of-Foreign-Students-/49142/>, accessed 7/6/11, CW)

The number of foreign students attending American colleges hit an all-time high in 2008, capping three consecutive years of vigorous growth, according to new data from the Institute of International Education. Some 671,616 international students attended U.S. institutions in 2008-9, an increase of almost 8 percent from a year earlier. First-time-student enrollments grew even more robustly, by nearly 16 percent. But the rosy data highlighted in the annual "Open Doors" report may obscure some potentially worrisome trends. Though graduate programs typically rely more on international students, enrollment grew far more strongly at the undergraduate level, where the number of students jumped 11 percent, than at the graduate level, where enrollments climbed a little more than 2 percent. What's more, the increase in students pursuing undergraduate studies was largely dependent on enrollment from China, which shot up by 60 percent.

Link Turn – Plan Increases Workforce

Funding space exploration projects critical to retaining aerospace domestic workforce

Aerospace Industries Association 11

(“NASA: A Sound Investment for our Nation’s Future”,

<http://www.aia-aerospace.org/assets/NASA%20FY12%20Funding%20White%20Paper%20FINAL.pdf>) access 7/9/11

Stable Funding is Critical to Workforce and System Development. It is critical that NASA receive the full top-line funding as requested by the President that follows the goals presented in the NASA Authorization Act of 2010. Fluctuating budgets and delayed programs take their toll on schedule, production and maintaining a skilled workforce. Funding and program instability results in the permanent loss of human capital while reducing options for retaining this specially trained and skilled workforce.

Investment in space industry key to encouraging US students to enter aerospace programs

Aerospace Industries Association 8

(“Launching into Aerospace: Industry’s Response to the Workforce Challenge”,p.2, <http://www.aia-aerospace.org/assets/workforce_report_1_sept08.pdf>) access 7/8/11

Today, the United States is not meeting the need, and there is strong reason to conclude that, without aggressive action from within the industry, the situation will worsen, placing the future of aerospace technology at risk.

Concerns about the viability and stability of the defense and aerospace industry have been leading prospective science and engineering graduates onto other career paths. A lack of career opportunities in defense and aerospace due to the large cutbacks and retrenchments in the early 1990s has had much to do with a lingering perception of unpredictability in the industry.

Alt Cause of Brain Drain

Skill sets, Ecosystems, capital interdependence, and governments cause “brain drain”

Dutta and Mia, Roland Berger Chaired Professor of Business and Technology and Global Competitiveness Programme at the World Economic Forum, Senior Economist ‘09

(Soumitra and Irene, 2009 World Economic Forum “The Global Information Technology Report 2008–2009 Mobility in a Networked World” BLG)

What makes talent move across borders: A simple model The 20th century has seen a progressive re-balancing between the “push factors” of migration (diseases, poverty, and conflicts) and the “pull factors” of labor movements (better wages and better opportunities to acquire new skills or develop a business). Over the last few decades, however, international labor mobility has been greatly facilitated and encouraged by factors such as the following:

• Significant differences in earning potentials for similar skill sets. Classic examples are those of Indian software developers (Indian salaries being a fraction of those paid in the United States or Western Europe).This has also applied to profes- sionals trained in Eastern Europe (whose wages are far below those of their western counterparts).

• Ecosystem attractiveness. One of the major non-monetary reasons for talents to move outside their country of origin is the presence of an ecosys- tem that provides an enabling environment for professional growth and self-development. For example, R&D professionals may wish to go abroad in search of better laboratories, a more stimulating research environment, more peer-to-peer interaction, higher funding, or better relationships between universities and business.

• Interdependence among capital, competence, and talent flows. Available evidence shows a strong correlation between growth opportunities on one hand and the ability to attract both capital and talent on the other.

• Increasingly important roles of governments. When it comes to attracting or retaining talents, governments have a key role to play in designing and implementing proper fiscal and immigration policies; more and more, they tend to do this in accordance with the relative shortage (or relatively high costs) of the skills required by the enterprises of their respective countries. For example, in the United States, a special class of visas (H1) is being granted to IT professionals: a large proportion of the beneficiaries of such visas come from India’s IT industry.

No Impact – General

No Impact- 50% of Scientists return to their original country and bring increase knowledge

Georghiou, University of Manchester, Director of Institute for Policy Research in Engineering ‘04

(Luke, Science and Technology (PREST) and Chair, Institute of Innovation Research, February 22-23 2004, “‘BEYOND BRAIN DRAIN’ MOBILITY, COMPETITIVENESS

& SCIENTIFIC EXCELLENCE” Workshop Report p. 29 BLG)

In general the term mobility is preferable to that of brain drain as it better captures the dynamics of movement of people at different stages of their careers. One way in which mobility interacts with the issue of increasing the supply of researchers is in redressing deficiencies at the stage of university entry or at the commencement of postgraduate studies. Student mobility is expected to double about every 15 years with US, UK, France, Germany and Australia accounting for 80% of receipts and Asian countries 45% of donors and the resulting graduate population, already acclimatised to working in a Western environment provides a significant potential recruitment reservoir.

Within the European Union there are already flows of graduates taking place. Doctoral & postdoctoral flows are mainly from the South to the scientifically advanced systems of the North. With the accession of New Member States these flows will increasingly also be from East to West. While there may be overall benefits to Europe resulting from placing some of the brightest individuals in the best supported systems the downside to this (and to retention of students) is that of perpetuation of regional inequity by removing some of those who could make a major contribution to development of their own countries. Against this, in the present era of high mobility and broadband communication, expatriates are rapidly gaining in recognition of their value as a network resource for their country of origin.

In a sense mobility of researchers to the USA repeats the same problem but with all other countries affected. The issue is less one of absolute numbers and more a problem of the loss of the best. However, again the long-term incidence of benefits is not clear. An international evaluation of the International Human Frontier Science Program, which operates an elite postdoctoral scheme in the biosciences, found an eventual (10 year) return rate of fellows of around 50% overall. Thos would suggest that, at least in a well-managed scheme, the benefits of an enhanced individual are reasonably shared between host and country of origin.

Status quo programs solve brain drain

Georghiou, University of Manchester, Director of Institute for Policy Research in Engineering ‘04

(Luke, Science and Technology (PREST) and Chair, Institute of Innovation Research, February 22-23 2004, “‘BEYOND BRAIN DRAIN’ MOBILITY, COMPETITIVENESS

& SCIENTIFIC EXCELLENCE” Workshop Report p. 29 BLG)

In summary, despite the unlikelihood of the 3% target being met, a major quantitative challenge exists in the matching the supply of researchers to increased future demand. The precise numbers needed are unpredictable, not least because they are affected by possible changes in capital intensity and productivity. Nonetheless, conditions governing the entry and retention of researchers in the profession are important. Also critical is the qualitative challenge in matching skills to needs even though the evidence suggests that the problem is specific to certain mainly numerate areas. What this review of some recent studies suggests is that the issues can only be addressed by complete systemic approaches. The systemic approach needs to be simultaneously vertical and horizontal: the vertical approach encompasses the life pattern through education, training, mobility and careers, while the horizontal approach places human resource policy in the context of the full range of innovation policies with which it needs to be coordinated.

No Impact - Brain Circulation

Internationalists believe in the value of brain circulation – a multidirectional flow of knowledge that benefits everyone

Solimano, chairman of the International Center of Globalization and Development, 8 (Andrés, “The International Mobility of Talent: Types, Causes and Development Impact”, Oxford University Press, vol. 1, p. 2-4, CW)

The topics of brain drain and brain circulation—more colloquial names for the international mobility of talent—is now reviving after being largely dormant for a few decades. In the 1960s and 1970s there were interesting polemics among economists between the ‘nationalists’ (represented by Don Patinkin) and the ‘internationalists’ (represented by Harry Johnson) that also affected the views of policymakers at the time. The internationalist view stressed that the mobility of talent was the result of better 1-2 economic and professional opportunities found abroad than in the home country and that this mobility leads to clear gains for those who move and also for the world economy as resources moved from places with lower productivity to places with higher productivity, thereby raising world income and global welfare. The nationalist school, in turn, questioned the practical meaning of the concept of ̈world welfare ̈ and pointed out the asymmetric distribution of gains from mobility between receiving and sending countries associated with the mobility of qualified human resources. At that time the topic was strongly influenced by the notion of ‘brain drain’, say a one-way flow of qualified human resources from poor to rich countries (or from the periphery to the core nations in the world economy) that entailed a net permanent loss for the source country. These flows were often viewed as having a negative effect on source countries that made an educational investment in qualified human resources that ultimately left their home nations. These views are evolving and at the start of the twenty first century we think more in terms of ‘brain circulation’, a two way (or multiple directional) movement of talented individuals such as students, professionals, information technology experts, entrepreneurs, cultural workers, and others in the world economy in response to new opportunities open to them by globalization in different cities and countries around the world. This trend has been reinforced by the now greater information flows on economic opportunities and life-styles across the globe and by lower transportation costs. New literature on the topic, distancing itself from the old emphasis on the costs of talent emigration, is highlighting mechanisms through which there can be a “beneficial brain drain” emphasizing some possible positive effects for source countries of the emigration “knowledge workers”. These effects are in terms of flows of remittances, production of 1-3 goods of superior technological content that can benefit consumers and producers in the home country, transfer of new technologies and ideas. In turn, this new literature more than lamenting the fiscal cost of talent emigration poses that the higher mobility of human capital can be a good thing as it ties the hands of government that want to tax human, a needed ingredient for economic development.

Brain Circulation Good - Research

A sending country can profit from brain drain – immigrants generally return

Regets, Senior Analyst, Division of Science Resources Statistics, National Science Foundation, 7 (Mark C., National Science Foundation, Division of Science Resources Statistics, “Research Issues in the International Migration of Highly Skilled Workers: A Perspective with Data from the United States” [working paper], June 2007, <http://www.nsf.gov/statistics/srs07203/pdf/srs07203.pdf>, p7, date accessed: July 9, 2011) PG

**An important** (although not necessary) **way for a sending country to benefit from the flow of knowledge is for its natives to return after they have spent a period of time outside the country either in school or working. Despite wage differentials and other differences in opportunities, return migrations are common, even between developed and less-developed countries**.[7] To a great extent, **this is unsurprising and reflects the importance of cultural and family ties to migrants.** Another factor that encourages return migration is **the temporary nature of the work permits that many countries use as their primary method for allowing employers to recruit noncitizens.** **For example, the most common visa the United States issues to highly skilled workers, the H-1B visa, has a duration of 3 years, allows a single 3-year renewal period**, and is not formally part of any path to a permanent visa.[8] Finn (2005) showed that **slightly more than three-fifths of foreign students with temporary visas who received U.S. S&E** doctorates in 1998 were still working in the United States 5 years later.[9] **This implies that the other two-fifths left the United States[10] with training received at a U.S. university** and perhaps a postdoc position or other postgraduate work experience. As shown intable3, Finn (2005) found that 5-year-stay rates varied by field of degree, ranging in 2003 from 36% in economics to 70% in computer science and computer and electronic engineering.

Returning immigrants are key to new development

Regets, Senior Analyst, Division of Science Resources Statistics, National Science Foundation, 7 (Mark C., National Science Foundation, Division of Science Resources Statistics, “Research Issues in the International Migration of Highly Skilled Workers: A Perspective with Data from the United States” [working paper], June 2007, <http://www.nsf.gov/statistics/srs07203/pdf/srs07203.pdf>, p8, date accessed: July 9, 2011) PG

In addition to knowledge transfers, **the return of natives to a sending country also brings a gain of human capital that may not have been developed had the migrants stayed in their home countries.** There are several reasons for this. **Differences in the availability or quality of particular areas of university instruction may have been a reason for the original cross-border movement. Knowledge of unique technologies may also be gained in formal employment**. In addition, foreign employers and educational institutions often finance both formal education and job-related training to a considerable extent.

High skill migration is key to international cooperation

Regets, Senior Analyst, Division of Science Resources Statistics, National Science Foundation, 7 (Mark C., National Science Foundation, Division of Science Resources Statistics, “Research Issues in the International Migration of Highly Skilled Workers: A Perspective with Data from the United States” [working paper], June 2007, <http://www.nsf.gov/statistics/srs07203/pdf/srs07203.pdf>, p18 date accessed: July 9, 2011) PG

Many of the **positive effects of high-skill migration for receiving countries are** the same as those experienced by sending countries: **gains related to increases in international collaboration and technology transfer, with the same implications for increasing domestic productivity and developing global markets.** In the case of the United States, where relatively few native-born individuals migrate abroad for employment, **many of its global connections come from foreign scientists and engineers**. **Both those who come to the United States to stay, and those who leave after a period of school or employment, form part of a network between U.S. research institutions and business and foreign institutions.**

Brain Circulation Good – Research

Brain drain is key to education in the receiving country – that’s key to new research and knowledge

Regets, Senior Analyst, Division of Science Resources Statistics, National Science Foundation, 7 (Mark C., National Science Foundation, Division of Science Resources Statistics, “Research Issues in the International Migration of Highly Skilled Workers: A Perspective with Data from the United States” [working paper], June 2007, <http://www.nsf.gov/statistics/srs07203/pdf/srs07203.pdf>, p14, date accessed: July 9, 2011) PG

Increased enrollment is the other side of concern about displacement of natives in graduate programs. In the United States, **the availability of foreign students may allow many graduate departments to expand or maintain graduate programs.** In other cases, **foreign students may enable elite programs to maintain very high standards by allowing the programs to choose among the best of both foreign and native applicants.**

**Graduate programs are important sources of new research and knowledge** in their own right, with students providing labor for research and teaching both informally and through relatively low-paid research and teaching assistantships. **This graduate student labor may provide a benefit to receiving countries, even if foreign students leave immediately after graduation and play no part in later knowledge networks.**

In addition, **colleges and universities receive some direct financial benefits from foreign students in the form of tuition and fees**. Data from the Institute for International **Education (IIE) show 81.8% of undergraduate international students in the United States had personal and family funds astheir primary source of support in the 2003–04 academic year**. At the graduate level, **IIE shows 51.6% with personal and family funds as their primary source of support.[24]**

Brain drain good – multiple warrants

Regets, Senior Analyst, Division of Science Resources Statistics, National Science Foundation, 7 (Mark C., National Science Foundation, Division of Science Resources Statistics, “Research Issues in the International Migration of Highly Skilled Workers: A Perspective with Data from the United States” [working paper], June 2007, <http://www.nsf.gov/statistics/srs07203/pdf/srs07203.pdf>, p15, date accessed: July 9, 2011) PG

**An international job market has important implications for the quality of job matches for both workers and employers**. In a world where increased specialization leads to increased employer dependence on scarce or unique skill sets**, the reasons employers find it increasingly efficient to search across borders are clear.** Not only might an individual with a particular combination of skill and experience be hard to find, but the difference between the best and the second best job match may be large. At the same time, **greater employment options resulting from a global labor market may allow workers to find the work most interesting to them.**

**There may also be a global benefit from the formation of international research and technology centers. Researchers studying innovation have long noted the apparent benefits of geographic clustering of particular research activities**. To a great extent, this **clustering of specialized research required international migration of highly skilled workers for staffing.**

For all of these reasons**, international high-skill migration is likely to have a positive effect on global incentives for human capital investment. It increases the opportunities for highly skilled workers both by providing the option to search for a job across borders and by encouraging the growth of new knowledge.**

Brain Circulation Good – Research

“Brain Drain” spreads knowledge

Solimano, United Nations Economic Commission for Latin America and the Caribbean, Regional Advisor ‘08

(Andrés, February 14 2008, “The International Mobility of Talent: Types, Causes and Development Impact” p. 1-3 BLG)

At that time the topic was strongly influenced by the notion of ‘brain drain’, say a one-way flow of qualified human resources from poor to rich countries (or from the periphery to the core nations in the world economy) that entailed a net permanent loss for the source country. These flows were often viewed as having a negative effect on source countries that made an educational investment in qualified human resources that ultimately left their home nations. These views are evolving and at the start of the twenty first century we think more in terms of ‘brain circulation’, a two way (or multiple directional) movement of talented individuals such as students, professionals, information technology experts, entrepreneurs, cultural workers, and others in the world economy in response to new opportunities open to them by globalization in different cities and countries around the world. This trend has been reinforced by the now greater information flows on economic opportunities and life-styles across the globe and by lower transportation costs. New literature on the topic, distancing itself from the old emphasis on the costs of talent emigration, is highlighting mechanisms through which there can be a “beneficial brain drain” emphasizing some possible positive effects for source countries of the emigration “knowledge workers”.

**International opportunities create better researchers when they return**

Lola, Marie Curie Fellowship Association, Secretary General ‘04

(Magda, February 2004 “Training, Mobility and Career Development of Researchers” Workshop Report date accessed 7/9/11 BLG)

There are clear challenges and advantages associated with research mobility and, for many people, it is the only way to acquire access to the research facilities and infrastructures required for making important progress. Researchers are given the opportunity to work in forefront activities with experts in their field, outside their country of origin and often in a different discipline than the one with which they started. In addition, while acquiring scientific knowledge without boarders and constraints their work becomes significantly more visible.

The benefits from mobility go far beyond that, particularly for early-stage researchers. Integration in a multinational and multicultural environment typically leads to early scientific maturity and independence. People learn to be flexible and open-minded and to easily adapt to new situations, global structures and skills that will be useful in any work environment. It comes as no surprise, therefore, that the vast majority of researchers have declared in discussions, interviews and surveys, that the impact of international training schemes on their career has been extremely positive and that it will eventually enhance their future career prospects.

Brain Circulation Good – Economy

Brain drain spurs economic growth in the US

Solimano, PhD in Economics MIT, 8

(Andres, Cambridge University Press, February, “The International Mobility of Talent: Types, Causes and Development Impact”, p1:17) date accessed 7/8/11 PG

**The relation between growth and international migration of talent in the country that receives the migrants can reflect a mutual causality: rapid growth, expanding opportunities, technological discoveries, and land/natural resource availability in the host country** generates a demand for unskilled labour and for talent as the domestic supply of those human resources may be insufficient to meet the increased demand. Then, growth and opportunities may precede the mobility of talent. In turn, the inflow of talent, capital and technology reinforces and sustain a growth dynamics. **Historically, the immigration of people with entrepreneurial capacities and a favourable attitude towards risk-taking contributed to business creation, resource mobilization, colonization, and innovation – all factors that supported rapid economic growth** – in the countries of the New World in the first era of globalization (pre- 1914).3More recently, in the 1990s, **entrepreneurial immigrants from India, Taiwan, and China in to Silicon Valley in the US have provided a valuable human resource in the creation of high technology industries, both in hardware and software in the receiving country, in this case in the united States as an important host country for foreign entrepreneurs**. They have engaged in business creation and output growth in the high-tech sector contributing to economy-wide growth. **In turn, the return migration of technology entrepreneurs has helped to drive the acceleration in growth in recent years in India, China, Taiwan and others.**

Technology abroad can help growth in home countries

Solimano, United Nations Economic Commission for Latin America and the Caribbean, Regional Advisor ‘08

(Andrés, February 14 2008, “The International Mobility of Talent: Types, Causes and Development Impact” p.1-18 BLG)

This is the brain drain effect. However, this is not the end of the story as emigration raises the returns on investment in human capital (under decreasing returns as the stock of human capital is lower) thereby inviting more investment in education with future positive growth effects. In this case, the “brain drain effect” of emigration of talent has to be counter-balanced with the brain gain effect. At the same time, if emigration follows a cycle and the emigrant returns home bringing fresh capital, contacts, and knowledge we have a positive development effect for the home country. In Taiwan in the last two decades or so, the formation and development of the Hsinchu Science-based Industrial Park (HSIP) benefited greatly from return immigrant Taiwanese entrepreneurs and engineers from Silicon Valley. In fact, several successful Indians and Taiwanese in the high-tech industry in the US also set up hardware and software companies in their home countries contributing to growth in the source countries.

Brain Circulation Good – Economy

Brain circulation increases world income and global welfare.

Solimano, United Nations Economic Commission for Latin America and the Caribbean, Regional Advisor ‘08

(Andrés, February 14 2008, “The International Mobility of Talent: Types, Causes and Development Impact” p. 1-2 BLG)

The topics of brain drain and brain circulation—more colloquial names for the international mobility of talent—is now reviving after being largely dormant for a few decades. In the 1960s and 1970s there were interesting polemics among economists between the ‘nationalists’ (represented by Don Patinkin) and the ‘internationalists’ (represented by Harry Johnson) that also affected the views of policymakers at the time. The internationalist view stressed that the mobility of talent was the result of better economic and professional opportunities found abroad than in the home country and that this mobility leads to clear gains for those who move and also for the world economy as resources moved from places with lower productivity to places with higher productivity, thereby raising world income and global welfare. The nationalist school, in turn, questioned the practical meaning of the concept of ̈world welfare ̈ and pointed out the asymmetric distribution of gains from mobility between receiving and sending countries associated with the mobility of qualified human resources. At that time the topic was strongly influenced by the notion of ‘brain drain’, say a one-way flow of qualified human resources from poor to rich countries (or from the periphery to the core nations in the world economy) that entailed a net permanent loss for the source country. These flows were often viewed as having a negative effect on source countries that made an educational investment in qualified human resources that ultimately left their home nations.

Brain drain is key to creating a bridge between two nation’s markets—benefiting both nations

Solimano, PhD in Economics MIT, 8 (Andres, Cambridge University Press, February, “The International Mobility of Talent: Types, Causes and Development Impact”, p1:4-5) date accessed 7/8/11 PG

**The story now is of a world in which Indian and Chinese nationals that after graduating in the US became successful entrepreneurs** (e.g. in Silicon Valley) **and who are uniquely positioned to serve as bridges between Asian and American markets given their contacts, access to technology and capital in both markets and societies.** In the 1990s and early 2000s t**hese people started new productive ventures in their home countries transferring technology and market knowledge. In the Latin American context, Chilean, Mexican, and Bolivian entrepreneurs are making successful inroads in biotechnology and cellular phone companies in North America.** Some of those **investments also have created new links and encouraged new investments in their home countries**. The **international mobility of talent is not only restricted to the business sector but it is also present in the cultural sector**: international celebrities in the world of literature and painting such as Isabel Allende, Mario Vargas Llosa, Fernando Botero, and others are succeeding in Europe, likewise famous soccer players from Africa who succeed in rich countries. However, not all talent mobility is as glamorous as these examples could suggest. A particularly dramatic case is the massive and persistent emigration of medical doctors, nurses and other workers in the health sector coming from poor nations in sub-Saharan African, from the Philippines and other developing countries who go to work to the UK, US, Canada, Australia and other developed countries. The negative side effect of this mobility of health professionals is the weakening of the health sector in the source countries. This is particularly serious in the case of Africa suffering from AIDS epidemics, malaria, and other diseases that impair the countries’ development potential and causes loss of human lives. This poses conflicts between the private interests of health professionals and the social needs of the health sector in the home countries.

Impact Turn - Economy

Plan increases US aerospace industry - The aerospace industry contributes 15% of our GDP and over 15 million American jobs.

President’s High Growth Job Training Initiative in the Aerospace Industry ‘05

(May 2005, America’s Aerospace Industry: Identifying and Addressing Workforce Challenges “Report of Findings and Recommendations For The President’s High Growth Job Training Initiative in the Aerospace Industry” <http://www.doleta.gov/brg/indprof/aerospace_report.pdf> 7/6/11 BLG)

The aerospace industry was selected for the President’s High Growth Job Training Initiative in large part because of its significant impact on the economy overall, as well as its impact on the growth of other industries. The President established a Commission on the Future of the United States Aerospace Industry to call attention to how the “critical underpinnings of this nation’s aerospace industry are showing signs of faltering—and to raise the alarm.” The aerospace industry is a powerful force within the U.S. economy and one of the nation’s most competitive industries in the global marketplace. It contributes over 15 percent to our Gross Domestic Product and supports over 15 million high-quality American jobs. Aerospace products provide the largest trade surplus of any manufacturing sector. Last year, more than 600 million passengers relied on U.S. commercial air transportation and over 150 million people were transported on general aviation aircraft. Over 40 percent of the value of U.S. freight is transported by air. Aerospace capabilities have enabled e-commerce to flourish with overnight mail and parcel delivery, and just-in-time manufacturing. “The industry is confronted with a graying workforce in science, engineering and manufacturing, with an estimated 26 percent of industry employees available for retirement within the next five years. New entrants to the industry have dropped precipitously to historical lows as the major manufacturing companies continue to consolidate. Compounding the workforce crisis is the failure of the U.S. K-12 1 education system to properly equip U.S. students with the math, science, and technological skills needed to advance the U.S. aerospace industry.” 1

**Economic downturn causes extinction**

Bearden. Director, Association of Distinguished American Scientists, 2000

(T.E., “The Unnecessary Energy Crisis: How to Solve It Quickly”, June 12 www.cheniere.org/techpapers/Unnecessary%20Energy%20Crisis.doc)

Bluntly, we foresee these factors - and others { } not covered - converging to a catastrophic collapse of the world economy in about eight years. As the collapse of the Western economies nears, one may expect catastrophic stress on the 160 developing nations as the developed nations are forced to dramatically curtail orders. International Strategic Threat Aspects History bears out that desperate nations take desperate actions. Prior to the final economic collapse, the stress on nations will have increased the intensity and number of their conflicts, to the point where the arsenals of weapons of mass destruction (WMD) now possessed by some 25 nations, are almost certain to be released. As an example, suppose a starving North Korea launches nuclear weapons upon Japan and South Korea, including U.S. forces there, in a spasmodic suicidal response. Or suppose a desperate China - whose long range nuclear missiles can reach the United States - attacks Taiwan. In addition to immediate responses, the mutual treaties involved in such scenarios will quickly draw other nations into the conflict, escalating it significantly. Strategic nuclear studies have shown for decades that, under such extreme stress conditions, once a few nukes are launched, adversaries and potential adversaries are then compelled to launch on perception of preparations by one's adversary. The real legacy of the MAD concept is his side of the MAD coin that is almost never discussed. Without effective defense, the only chance a nation has to survive at all, is to launch immediate full-bore pre-emptive strikes and try to take out its perceived foes as rapidly and massively as possible. As the studies showed, rapid escalation to full WMD exchange occurs, with a great percent of the WMD arsenals being unleashed . The resulting great Armageddon will destroy civilization as we know it, and perhaps most of the biosphere, at least for many decades.

Impact Turn– Leadership

The US needs to invest more in aerospace to retain leadership.

American Institute of Aeronautics and Astronautics (AIAA) ‘10

(No author, 2010, American Institute of Aeronautics and Astronautics (AIAA) “Recruiting, Retaining, and Developing a World‐Class Aerospace Workforce: An AIAA Information Paper “http://pdf.aiaa.org/downloads/publicpolicypositionpapers//Aero\_Workforce\_Information\_Paper\_030910.pdf 7/6/11 BLG)

Research and development expenditures keep the aerospace industry strong and help maintain US leadership in this sector. As shown in Figure 46, the R&D tax credit is working to increase corporate spending on this important activity. In the early 1990s, after implementation of the R&D tax credit legislation, private expenditures on R&D rose2. Yet even with this incentive, U.S. industry research and development funding is lagging. In 2001, US industry spent more on tort litigation than on research and development4. Perhaps as a result, American companies are lagging in patents. In 2005, only four American companies ranked among the top 10 corporate recipients of patents granted by the United States Patent and Trademark Office4. And to further add to this distressing R&D dollars situation, federal research funding is lagging as well. The amount invested annually by the US federal government in research in the physical sciences, mathematics, and engineering combined is less than what Americans spend on potato chips,8 .

Space leadership is critical to overall US hegemony- provides intelligence and warfighting capabilities.

Young 8 (Thomas, Chair for the Institute for Defense Analyses Research Group, “Leadership, Management, and Organization for National Security Space”. July 2008. [http://www.armyspace.army.mil/ASJ/Images/National\_Security\_S pace\_Study\_Final\_Sept\_16.pdf](http://www.armyspace.army.mil/ASJ/Images/National_Security_Space_Study_Final_Sept_16.pdf)) AV

Today, U.S. leadership in space provides a vital national advantage across the scientific, commercial, and national security realms. In particular, space is of critical importance to our national intelligence and warfighting capabilities. The panel members nevertheless are unanimous in our conviction that, without significant improvements in the leadership and management of NSS programs, U.S. space preeminence will erode to the extent that space ceases to provide a competitive national security advantage. Space technology is rapidly proliferating across the globe, and many of our most important capabilities and successes were developed and fielded with a government technical workforce and a management structure that no longer exist. *U.S. Leadership in Space is a Vital National Advantage* Space capabilities underpin U.S. economic, scientific, and military leadership. The space enterprise is embedded in the fabric of our nation’s economy, providing technological leadership and sustainment of the industrial base. To cite but one example, the Global Positioning System (GPS) is the world standard for precision navigation and timing. Global awareness provided from space provides the ability to effectively plan for and respond to such critical national security requirements as intelligence on the military capabilities of potential adversaries, intelligence on Weapons of Mass Destruction (WMD) program proliferation, homeland security, and missile warning and defense. Military strategy, operations, and tactics are predicated upon the availability of space capabilities.

Maintaining U.S. hegemony is key to preventing nuclear war

Khalilzad, former U.S. ambassador to Iraq and probably the most read author in debate, 95

(Zalmay, “Losing the Moment? The United States and the World After the Cold War,” Washington Quarterly, Spring 1995, p. lexis, JT)

Under the third option, the United States would seek to retain global leadership and to preclude the rise of a global rival or a return to multipolarity for the indefinite future. On balance, this is the best long-term guiding principle and vision. Such a vision is desirable not as an end in itself, but because a world in which the United States exercises leadership would have tremendous advantages. First, the global environment would be more open and more receptive to American values -- democracy, free markets, and the rule of law. Second, such a world would have a better chance of dealing cooperatively with the world's major problems, such as nuclear proliferation, threats of regional hegemony by renegade states, and low-level conflicts. Finally, U.S. leadership would help preclude the rise of another hostile global rival, enabling the United States and the world to avoid another global cold or hot war and all the attendant dangers, including a global nuclear exchange. U.S. leadership would therefore be more conducive to global stability than a bipolar or a multipolar balance of power system.

\*\*South Africa Scenario\*\*

South Africa - Non -Unique – Brain Drain Now

Brain Drain is ruining African science industry

Rivière, advisor to the managing director of the International Institute for Water and Environmental Engineering 11

(Sophie, Science and Development Network, 5/25, “Centres of excellence can stop Africa's brain drain”, http://www.scidev.net/en/opinions/centres-of-excellence-can-stop-africa-s-brain-drain.html, accessed 7/8/11 BLG)

African economies are growing quickly and employers across the continent are seeking qualified personnel to maintain and pursue their development. Centres of excellence aim to stop Africa’s brain drain with quality science training – Flickr/ US Army Africa But many Africans are still turning to northern or western countries for their education and their careers, making it difficult for African employers to hire qualified local staff. In fact, more than half of African students who study in Europe take up employment there, instead of returning home. Stopping the brain drain has become a necessity for Africa, so governments, companies and donors are trying to help young Africans to stay. These centres are investing heavily in the quality of education they are providing, gradually reducing the gap between institutions in the North and those in the South. They are also increasing their capacity to admit more students. Reversing the brain drain The International Institute for Water and Environmental Engineering (2iE) in Ouagadougou, Burkina Faso, is one of these centres of excellence. It specialises in water, energy, the environment, civil engineering and mining — fields of expertise tailored to the needs of local and regional economies.

\*\*India Scenario\*\*

India - Brain Drain Good – Economy

Impact Turn: Brain Drain good for India’s economy

Times of India ‘10

(The Times of India: Business, December 2, 2010 “India converted 'brain drain' into 'brain gain': PM” <http://articles.timesofindia.indiatimes.com/2010-12-02/india-business/28260158_1_brain-drain-brain-bank-brain-gain> 7/8/11 BLG)

NEW DELHI: Prime Minister Manmohan Singh on Thursday said India has overcome the problem of 'brain drain' and is drawing on the global 'brain bank' of people of Indian origin.

"Today, we in India are experiencing the benefits of the reverse flow of income, investment and expertise from the global Indian diaspora," he said at the Hiren Mukherjee Memorial Lecture in the Parliament House.

Welcoming the renowned economist Jagdish Bhagwati, who delivered the annual lecture, Singh said that the problem of 'brain drain' has been converted into an opportunity of 'brain gain'. "We are drawing on the global 'brain bank' of people of Indian origin world wide", he said, adding Bhagwati was one of the shining stars of that community of global Indians.

India - Brain Drain Good – Technology

Indian engineers in the US get drawn back to India due to a technological revolution

Ahmed, BBC News Correspondent ‘10

(Zubair, BBC <News:South> Asia “US 'reverse brain drain' to India now in full swing” <http://www.bbc.co.uk/news/world-south-asia-10614936> 7/8/11 BLG)

Years ago, the Silicon Valley beckoned the best IT minds from India. But the exchange of ideas and innovations after nearly two decades has reversed the trend. The charm of the US is wearing off. India's own Silicon Valleys are now at the forefront of innovation and they are attracting its shining lights back home from the US. There was a time when nearly 90% of graduates passing out of the prestigious Indian Institutes of Technology (IITs) headed to the West. But not any more.

Vinay Bapna, one of the early returnees, works and lives in Bangalore but carries mobile phones for both India and the US.

Some Indian IT companies now have better opportunities than the US

He called me back from his US phone to tell me firmly that it was the right decision to go back.

"It's exciting to be part of the technological revolution taking place in India," he said.

Harvi Sachar runs a trade magazine, called SiliconIndia, in Santa Clara and organises a job fair every year.

He says those who want to go back to India come to the fair from all over the US.

"This year around 400 IT professionals came and more than a dozen companies attended to fish for the best talents." And Nidhi was one of them.

The demand for talented and US-experienced personnel is so high that Mr Sachar has had requests pouring in from Indian companies.

"There is a shortage of experienced people in the growing Indian IT industry. So it's easier for the candidates to go back with an offer in hand. I think they get better jobs there and the companies get experienced people. So, it's a win-win situation for both parties," Mr Sachar said.

India - No Impact – Brain Drain Normal

Many Indian scientists are part of the brain drain now

Sen, professional blogger, webmaster and internet Marketer, 08

(Uttoran, Tech Nascent: Tech News, 10/20/8, “Technology in India – Massive Brain Drain”, <http://technascent.com/technology-in-india-massive-brain-drain/>, accessed 7/5/11 BLG)

With a sound educational infrastructure in place, India has no problems in meeting the demands of this technology driven industry. Medicine is also a field where Indians are quite advanced and are on par with developed countries in most segments in this filed. Indian hospitals and doctors are state of the art and it comes as no surprise that, medical tourism is on the rise because of the professional and competent staff and facility sand also because of the low cost involved. These days it’s become the norm for many patients from advanced nations to come to India for treatment making use of the facilities offered here. Apart from all these, India has progressed in all technological areas with most of the development made in-house and also investment into research and development has gone up many folds indicating our self-sufficiency and also the need to constantly update ourselves to be on par with the rest of the world. All this have taken place and is continually taking place in spite of massive brain drain out of India, with a significant percentage of skilled and competent Indians vying for greener pastures overseas. If all these resources were tapped into, also with an increase in state funding into technology research and development, we can say, sky is the limit for India and the possibility of India being a technological superpower cannot be too far ahead. An economically, militarily and technologically strong India is definitely good not only for its own people but also for the whole world.

India - No Impact – Economy Resilient

No Impact- India’s economy is resilient

Chopra, freelance reporter ‘11

(Anuj, July 10, The National “India reverses its brain drain” <http://www.thenational.ae/thenationalconversation/industry-insights/economics/india-reverses-its-brain-drain?pageCount=2> 7/10/11 BLG)

Asian economies such as India and China are emerging as the salvation destination not just for people who originated in those countries but also for foreign nationals.

The proportion of graduates of premier US business schools such as Wharton and Kellogg who are tapping jobs in Asia grew from 5 per cent four years ago to more than 10 per cent last year. In recent years, India has offered new opportunities of wealth creation. Even though the country's GDP is barely 2 per cent of the world's, it has nearly 7 per cent of the world's more than 1,000 dollar billionaires.

A tenfold increase in per capita income by the year 2039 from the current level of more than $1,000 is forecast if its economy continues to expand at the current annual pace of about 8 per cent, says Kaushik Basu, the government's chief economic adviser.

The global human resources consultancy Aon Hewitt said in March that employees in India would see a 12.9 per cent increase in salaries this year, higher than last year's increase of 11.7 per cent, despite looming high inflation and growing fears of an economic slowdown. This growth rate, which is led by the engineering services sector, is the highest in the Asia-Pacific region, followed by China (9 per cent) and Philippines (7 per cent).

"The rate of India's salary rise is likely to be among the highest in the world as companies grow fast and domestic consumption rises due to good economic growth," says Nitin Sethi, an executive at Aon Hewitt in India. "Investment in infrastructure, continued momentum in services and efforts towards fiscal consolidation are adding to the optimism."

India - Impact Non-Unique – Econ Low Now

Impact Non-Unique: India economy low now- US economic progress is stifling

[Dholakia](http://trak.in/tags/business/author/viral-dholakia/), freelance financial writer ‘11

(Viral, January 15, Trak.in India Business Blog “Will US Economic Recovery stall indian Growth prospects?” <http://trak.in/tags/business/2011/01/15/us-economic-recovery-indian-growth/> 7/10/11 BLG)

Post Global Recession 2008, India has been the beneficiary of capital inflows seeking markets with strong underlying growth prospects. This was, especially, true when the US economy was reeling under the pressures of severe slowdown led by their realty sector. Needless to say, a chunk of the European economy is still under pressure from high sovereign debts in select countries.

As America comes out ahead in 2011, the emerging economies like India and China are busy grappling with high inflation and soaring food prices. Some of this pricing pressure is said to have been fuelled by the “money printing” measures (QE2) in the US aimed at increasing the supply of money into the system; which necessarily leads to inflating global commodity prices mired by concerns of supply constraints.

Moreover, on the back of healthy growth prospects and tax-cut compromise that the US government passed last month is likely to strengthen the case for investors on being over-weight on US shares in their portfolios.

Further, the deteriorating prospects of the Indian economy – mired by economically costly run-up in inflation and sagging industrial output data at an 18-month low of 2.7% in November – is likely to prompt foreign funds to cut back on their India exposure in 2011.

That’s not all. The fact that Asian region has grown phenomenally and the US recovery is gaining traction has driven crude oil prices higher at over $90 per barrel in international markets. Additionally, larger than expected drop in crude stock-piles in the US Energy Department’s weekly inventory further adds to the woes.

India – AT: Economy

Impacts empirically denied – India has been economically unstable before

Guha-Thakurta MA in economics at Delhi University 8 (Paranjoy, DARE, “Political Instability and Economic Growth, 6/7/8, <http://www.dare.co.in/columns/paranjoy-guha-thakurta/political-instability-and-economic-growth.htm>, accessed 7/11/11, CW)

India is going through a period of not just political uncertainty, but economic instability as well. But are the two connected? Prime Minister Manmohan Singh made a prestige issue of clinching the nuclear agreement with the US in the teeth of opposition from the Left, at the risk of shortening the term of his government. At the same time, inflation, as measured by the official wholesale price index, had exceeded 11% after a gap of thirteen years, interest rates were hardening, and oil prices the world over had touched record highs. Paranjoy Guha Thakurta Politics and economics are often sought to be separated. But the two disciplines are intimately interlinked. Yes, politics intrudes into every household, in power relations between spouses and among siblings. So does economics, by determining what individuals eat and how they live. To those who argue that bad politics constrains economic reforms, one of Prime Minister Singh’s favorite remarks is that there is no difference between good economics and good politics.

Indian economic collapse inevitable – alt causes

Schuman American author and journalist who specializes in Asian economics, politics and history 11 (Michael, CNN, “India’s economy: Headed for trouble?”, 1/18/11, [http://curiouscapitalist.blogs.time.com/2011/01/18/india’s-economy-headed-for-trouble/](http://curiouscapitalist.blogs.time.com/2011/01/18/india's-economy-headed-for-trouble/), accessed 7/11/11, CW)

I've written in the past that India's economy emerged from the Great Recession in better shape than China's, despite its slightly lower growth rate. But now India looks like it's running into choppy times as well, with frighteningly high inflation, big budget and trade deficits and weakening competitiveness versus China and other rivals. Here's what Ken Courtis, an economist and founding partner of private-equity firm Themes Investment Management, had to say in a recent email:

The Indian economy has entered a period of quickly deteriorating macroeconomic conditions…Unless addressed quickly, purposefully, and systematically, left to its present course, India is headed for difficulty.

The problems India is facing show just how divided the world economy has become. While the advanced economies have been struggling to create growth and jobs and fight deflation, the roaring emerging world is struggling with the negative spin-off effects of rapid growth and strong domestic demand, and are fighting rising inflation. Such woes might be the envy of the Americans, Spanish, Irish and others still dealing with the fallout from the Great Recession, but that doesn't make those woes any less dangerous. Growth aside, policymakers in the emerging world are perhaps facing as tough a 2011 as their counterparts in the U.S., Europe and Japan. The issues and priorities might be different – totally opposite in many ways -- but the problems are no less difficult to resolve.

\*\*Russia Scenario\*\*

Russia - Space Not key to Econ

Econ key to space, not the other way around

Zak Air & Space Smithsonian Reporter 11

(Anatoly Zak , Russian Space Web, “Russian space program: a decade review (2010-2020)”, 6/8/11, <http://www.russianspaceweb.com/russia_2010s.html>, accessed 7/5/11 BLG)

Russia entered the second decade of the 21st century in the midst of the world-wide economic crisis. In 2009, the Russian economy shrank by 8.5 percent, amid declining oil revenues and the flight of foreign capital from the country. As a result, the nation's space budget, heavily dependent on government subsidies, experienced a shortfall in the runup to 2010, pushing a number of projects behind schedule. Still, in a larger economy there were some positive developments on the horizon -- one being a reported long-awaited reversal of the 15-year-long population decline. As a key ingredient of a healthy nation, the population increase promised to reduce Russia's lag behind the economic growth of China, Brazil and India -- nations with emerging economies and, not coincidently, with growing space programs. At least one optimistic Western forecast even gave the Russian economy a chance to overtake Germany's in 2029 and Japan's in 2037. hanks to government subsidies, the Russian space industry weathered the latest economic crisis relatively unscathed. However despite improved funding, the reality showed that money couldn't buy everything. Typically for the Russian economy, the nation's space sector continued suffering from the aging work force, brain drain and inefficiency.

Russia - Space has been cut before

No internal link: Russian space program has been gutted before

Zak Air & Space Smithsonian Reporter 11

(Anatoly Zak , Russian Space Web, “Russian space program: a decade review (2010-2020)”, 6/8/11, <http://www.russianspaceweb.com/russia_2010s.html>, accessed 7/5/11 BLG)

Thanks to government subsidies, the Russian space industry weathered the latest economic crisis relatively unscathed. However despite improved funding, the reality showed that money couldn't buy everything. Typically for the Russian economy, the nation's space sector continued suffering from the aging work force, brain drain and inefficiency. (Details inside) Manned space flight Traditionally, manned space flight remained one of the strongest areas of the Russian space program. With improved funding in the second half of 2000s, the Russian government started planning new goals for its cosmonauts, largely reflecting US efforts, including lunar expeditions. However, in February 2010, the Obama administration proposed to cancel the plan to return to the Moon within the Constellation program. The move could have a major implications (both positive and negative) for other space-faring powers, first of all Russia and Europe, for years to come. Russian space officials hurried to re-affirm the public that the crisis in the US would have no effect on the the nation's long-term plans. However, an overly ambitious program by Roskosmos to build a new launch center, introduce a whole new type of rockets in 2015 and a next-generation manned spacecraft in 2018 looked less and less realistic. Critics questioned the wisdom of committing to a decade-long development program, instead of upgrading the existing Soyuz spacecraft for lunar missions, which could be accomplished within a few years.

Russia - Alt Causes – Econ

Alt cause – oil and other raw materials are key to the Russia economy

Young 11 (Andy, owner and editor of the Siberian Light Russia Guide, Siberian Light Russia Guide, “Russian Economy 2011”, 3/25/11, <http://siberianlight.net/russiaguide/russian-economy-2011/>, accessed 7/10/11, CW)

Russia’s economy reached its low point in the 1998 Russian financial crisis, where dramatic swings in the global price of raw materials (particularly oil and gas) destabilised the Russian economy. GDP dropped by more than half, from $404.927 billion in 1997 to $195.906 billion in 1999, and it wasn’t until 2003 that the Russian economy crept above $400 billion again.

Since then, the Russian economy has grown rapidly, fuelled largely by exports of raw materials and energy resources such as oil and gas. The dramatic increases in the price of raw materials has helped to boost Russian income as well. As well as measuring raw numbers – GDP grew from $196 billion in 1999 to $1.6 trillion in 2008 – Russia’s position in the world shifted as it moved from the 22nd largest global economy to become the 11th largest economy in the world. The growth in income has led to a renewed confidence in Russia, and a much more assertive foreign policy under its last two Presidents, Vladimir Putin and Dmitry Medvedev.

Oil key to Russian economy

Considine Member of CEPMLP Global Faculty and External Consultants team and Kerr MD in International Affairs from the School of Advanced International Studies at Johns Hopkins University 2 (Jennifer I. and William A., Foreign Affairs, “The Russian Oil Economy”, 2002, <http://www.foreignaffairs.com/articles/58483/richard-n-cooper/the-russian-oil-economy>, accessed 7/10/11, CW)

Russia matches Saudi Arabia as the world's largest producer of oil, and it may soon rival Saudi Arabia as the world's largest exporter. But then again, it may not. This book by two Canadian economists tells the story of Russian oil production from its beginnings in the 1890s, through its forced development under Josef Stalin and Nikita Khrushchev, its serious tribulations under Leonid Brezhnev, its sharp decline under Boris Yeltsin, and finally its recent revival under Vladimir Putin. The oil industry provides an excellent window on the transformation of Russia from a command to a quasi-market economy, especially since oil and gas are Russia's most important exports and Moscow's biggest source of revenue. The authors are agnostic about the future of Russian oil, despite huge proven and potential reserves. The industry remains a playground for Russian politics, and infirm property rights and extensive licensing requirements leave doubts about whether sufficient capital and technology, necessarily in part foreign, will be invested to realize Russia's great potential.

Russia - Brain Drain Non unique

No impact – Russian brain drain has been going on for more than ten years

BCC News, 2 (June 20, World Edition, “Russian brain drain tops half a million”, <http://news.bbc.co.uk/2/hi/europe/2055571.stm>, date accessed: July 10, 2011) PG

**A Russian trade union official has said that more than half a million scientists and computer programmers have left the country since the fall of the Soviet Union in 1991.**

The chairman of the unions represented at the Russian Academy of Sciences, Viktor Kalinushkin, told a news conference in Moscow that most of them were finding well-paid jobs in the United States, Europe and Japan.

**The average monthly wage for Russian scientists is less than $100, while in the West they can earn $3-7,000 a month.**

Mr Kalinushkin said physicists, biologists, chemists and computer programmers were in particularly high demand.

**He said Russian-speaking programmers in the USA were responsible for developing 30% of Microsoft products.**

**State support for science in Russia has shrunk since the collapse of the USSR in 1991**, but President Vladimir Putin has made it a priority to revive its prestige.

Mr Kalinushkin said there were currently two groups of scientists in Russia - young people under 30 who could be expected to leave to work abroad and an older generation around the age of 50, who usually remain behind.

**"Between 500,000 and 800,000 Russian scientists have left on long-term mission abroad in the past 10 years," he said.**

**"Almost none of them have returned."**

**Japan, the USA, the UK, Canada, France and Germany were the main beneficiaries, he said.**

Russia – No Brain Drain

No Brain Drain- Russian space scientists come home

Miteva, RIA Novosti, Staff Writer ‘10

(Tsvetelina, September 2, RIA Novosti “Russia’s IT brain drain over – expert” <http://en.rian.ru/business/20100902/160441955.html> 7/10/11 BLG)

Russian IT specialists no longer want to work in Europe and the United States, as they now have good prospects at home, a leading recruitment figure told RIA Novosti.

Since Soviet times, Russian top professionals and scientists have been emigrating abroad or abandoned scientific work in favor of higher incomes in commerce or other spheres. Independent reports estimate at least 80,000 emigrated in the early 1990s. The situation in the IT sphere is now likely to change dramatically.

"Russia now has a variety of good jobs for IT specialists. Many leading IT companies, including Oracle and Microsoft, have opened branches in Russia over the last 10 years," Tatyana Dolyakova, head of the Penny Lane Personnel recruiting company said.

The standard of living for IT specialists in Russia is comparable to that they could enjoy in Europe and the United States. In 2010, salaries in the IT sphere were among the highest in Russia, along with the banking sector, she added.

Russian specialists from the banking and the investment sectors are often employed in the West. However, on the whole, Western companies are not eager to employ Russians, Dolyakova said.

"The issue is mostly about top management - mid-range mangers almost do not leave Russia for Western countries," Dolyakova said. "There are approximately 10 Russians, two of them from the IT sphere, who head large Western companies," she added.

\*\*Israel Scenario\*\*

Israel - Non Unique – Brain Drain Now

Non-Unique: There is brain drain from Israel to America now- due to earning conditions

Ephron Newsweek Magazine Correspondent 11

(Dan, Newsweek: “‘There Are Problems Out There’”, 1/3/11, <http://www.newsweek.com/2011/01/03/stanley-fischer-on-israel-s-brain-drain.html>, accessed 7/7/11 BLG)

There’s also a significant brain drain in Israel. Can you explain why? The conditions are enormously better in the United States. A graduating student in economics who gets his first job in the United States will earn three or four times what he earns in Israel. And the universities are better equipped and all that. It demands something of people to come back. In the early years of the state, people wouldn’t go abroad because of patriotism, but it’s become accepted as Israel has become a more normal country. So these things, the brain drain, the problem of human capital, the concerns about test scores, seem counterintuitive. When we think of Israel, we think of “Startup Nation” and “the People of the Book” and so on. Is all that a thing of the past? No, I think both phenomena happen. The fact that we have a high-tech sector which is world renowned and has produced an enormous range of innovation is quite remarkable. And it depends if you look at the glass half empty or half full. What has surprised you about working in Israel? I underestimated how difficult things were to get through the bureaucracy. It’s harder than I thought. It takes time and enormous persistence É I also underestimated how pleasant it is to live in Israel. Once you‘re outside the context of the official sector, it’s a very pleasant place to live, and that’s hard for foreigners to accept.

**Non-unique:** **Israeli Brain Drain now- in all industries**

Saltzman former research fellow at the International Security Program 10

(Ilai, Harvard, Haaertz.com “The brain drain we don't hear about”, 5/13/10, <http://www.haaretz.com/print-edition/opinion/the-brain-drain-we-don-t-hear-about-1.290273>, accessed 7/7/11 BLG)

Recently, public discourse about the so-called brain drain - the massive flight of Israeli academics to institutions of higher learning the world over, and especially in the United States - has intensified. For the most part, the discussion has revolved around scholars in the fields of biology, physics, chemistry, computer sciences, business administration and economics. Hence, one might think that the flight of talent affects mainly the natural and exact sciences, as well as several nonscientific fields that are also considered "income generating" professions for the country, such as economics and business. Yet the reality, to our regret, is far more complex and worrisome. For, along with those in the sciences and economics-related fields, there is also a consistent drain of academics in the social sciences and humanities, whose work may not necessarily have a direct impact on leveraging the Israeli economy. Not only those seeking a cure for cancer or Alzheimer's are leaving the country, but also academics who are engaged in political science, history, literature, communications, statistics, linguistics and Middle Eastern studies, among many other fields.

Israeli brain drain high now

Kraft, freelance journalist on Israeli affairs, 8 (Dina, March 30, The Global News Service of The Jewish People, “Israel struggles with brain drain”, <http://www.jta.org/news/article/2008/03/30/107597/i60braindrain>) 7/7/11 PG

That figure makes **Israel’s rate of academic brain drain the highest in the world – 10 times the rate in Europe.** The brain drain problem is not new to Israel, but **it has intensified in recent years**, especially in economics and the sciences. Brain drain is a significant problem as well **in** other **professional fields** with major salary gaps, including high-tech, engineering, business and medicine. **Low salaries and high taxes are leading thousands of Israelis with higher educations to leave the country every year**, the report found. “Israel is not a central place,” he said, “and when you are starting out **exposure is important**.” Brosh made headlines earlier this year when he announced that 25,000 high-tech workers had left Israel in the past seven years to work for U.S. companies. Researchers dismissed the number as inflated, but the announcement highlighted the sense that **Israel is in a crunch.**

Israel - **No Impact – Economy Resilient**

No Impact- Israel has the most resilient economy in the world

Invest in Israel ‘11

(June 9, 2011, State of Israel Ministry of Labor: Invest in Israel “Israel: A Resilient Global Economy” <http://www.investinisrael.gov.il/NR/exeres/75A535CF-BCC7-4A06-9E24-88EAC7EC67C0.htm> 7/10/11 BLG)

Israel's economy was ranked highest for its durability in the face of the global financial crisis by the IMD in its 2010 World Competitiveness Yearbook. The 2010 report also ranked the Bank of Israel highest among central banks for its efficient functioning, after receiving 8th place in 2009.

Strong Fundamentals Confront the Global Economic Slowdown

The world's three largest rating agencies, Moody's, Fitch, and Standard & Poor’s, in a vote of confidence in the Israeli economy, maintained a high credit rating for Israel at a time when the economy's resilience was put to the test by both global financial pressures resulting from the credit crisis and geopolitical conflict. While Israel was not immune to the effects of the global credit crunch, as its main trading partners were hit by the crisis, the country's sound macroeconomic fundamentals and strict fiscal policy served as a buffer to dampen the impact of financial wobbles.

As a consequence of the macroeconomic strategy that Israel had adopted during the last two decades, together with the relatively conservative approach that was undertaken by the Israeli banking sector and the regulation carried out by the supervisor of banks, the Israeli economy was relatively well prepared to confront the challenges of the global crisis, including the prospects for economic slowdown. Though the crisis continues to loom from nearby Europe and a consequential slowdown might reflect on Israel through its trade ties, Israel's comparatively strong economic performance throughout the crisis vouches for its ability to continue to withstand any further financial pressures.

Israel – No Space Brain Drain

Space is key to fighting engineering brain drain in Israel.

Ben-Israel, Chair Israel Space Agency and Kaplan, Director Israel Space Agency, 8

(Professor M.K. Isaac and Dr. Zvi, “Out of This World: Israel’s Space Program”, p. 102, <http://www.mfa.gov.il/NR/rdonlyres/A7C494F2-62C2-44BC-8FA1-148D776A67DA/0/ch76.pdf>, accessed 7/7/11 BLG)

. Q: When we think about space programs, we think of manned space flights. Does Israel have ambitions in that field? Might we see others following Ilan Ramon, Israel’s first astronaut, who died when the Space Shuttle Columbia disintegrated on re-entry in 2003?

A: We have an ambition, but it’s too big for a small state like Israel. Still, we think it’s very important, because space is something which ignites the imagination of the young. If you want to fight the brain drain and attract young scientists to come back to Israel, space is very good. And for this you need manned space, too. So we will consider, as we did in the past, doing it in cooperation with someone bigger than us. There will be more Ilan Ramons. I hope with a better end.

Israel - Military Power Bad – Nuclear War

Israeli military power leads to nuclear war with Iran

Phillips, Middle Eastern Affairs in the Douglas and Sarah Allison Center for Foreign Policy Studies, Senior Research Fellow ‘10

James, January 15, Heritage Foundation Backgrounder “An Israeli Preventive Attack on Iran’s Nuclear Sites: Implications for the U.S.” <http://s3.amazonaws.com/thf_media/2010/pdf/bg_2361.pdf> 7/10/11 BLG)

Israel has repeatedly signaled a willingness to attack Iran’s nuclear sites if diplomacy fails to dis- suade Iran from continuing on its current threaten- ing course. The Israel Air Force staged a massive and widely publicized air exercise over the Mediter- ranean Sea in June 2008 in which Israeli warplanes, refueled by aerial tankers, simulated attacks on tar- gets that were more than 870 miles away, approxi- mately the same distance from Israel as Iran’s uranium enrichment facility at Natanz. Lt. General Dan Halutz, the Chief of Staff of the Israel Defense Forces in 2006, when asked how far Israel would go to stop Iran’s nuclear program, replied simply: “Two thousand kilometers.”1

Last year, Israeli officials leaked the details of a secret Israeli air attack against a convoy transport- ing Iran-supplied arms in Sudan that was headed for Egypt’s Sinai Peninsula to be smuggled through tunnels to Hamas. The officials stressed that the long distances involved signaled Israeli prepared- ness to launch other aerial operations against Iran if necessary.2 The government of Israeli Prime Minister Ben- jamin Netanyahu has sent even stronger signals since entering office last March. In an interview con- ducted on the day he was sworn into office, Netan- yahu warned that, “You don’t want a messianic apocalyptic cult controlling atomic bombs. When the wide-eyed believer gets hold of the reins of power and the weapons of mass death, then the entire world should start worrying, and that is what is happening in Iran.”3 Significantly, both Netan- yahu and his Defense Minister, Ehud Barak, for- merly served as commandos in the Israel Defense Forces and would be open to bold and risky action if the circumstances warrant it.

Non Unique – China

Brain drain impacts non unique—China’s losing space workers now

Long, Space Daily, 2k (Wei, Space Daily, March 13, “China’s space program faces serious brain drain”, <http://www.spacedaily.com/news/china-00k.html>, access 7/7/11) PG

**The Chinese national space program is suffering loss of skilled space specialists**, China News Service reported last week after Li Jianzhong, head of the Chinese Acadamy of Launch Vehicle Technology (CALT) discussed the problem with Premier Zhu Rongji earlier in the week**. Li pledged to Zhu that the nation must address the "braindrain" problem expeditiously, and to implement a practical policy to retain workers with technical skills, particularly talents in specialized systems**.But some of the **young technicians were attracted to the higher paying jobs many foreign companies offer.** Li had even seen that these companies used their oone of the research institutions in the Academy, Li said that **the loss of skilled workers reached an alarming 40 percent a year**. This has posed agonizing problems for the Academy. "The Chief Designer at the Academy earns a monthly salary of slightly more than 3,000 Renminbi (U.S. $360) while a young technician makes about 1,000 Rwn vehicles to transport young technicians to and from the Academy as a way to lure them to change jobs. In enminbi (U.S. $120). If they 'jump ship' to work for a foreign company or a joint [China-foreign] enterprise, the salary would be 8,000 Renminbi (U.S. $960) a month**. There is a clear difference [in earnings]** and how can we compete with others?" said Li.

China is preventing brain drain from happening

LaFraniere, 10

(Sharon, The New York Times, January 6, “Fighting Trend, China is Luring Scientists Home”, <http://www.nytimes.com/2010/01/07/world/asia/07scholar.html>) date accessed 7/8/11PG

China’s leaders do not. **Determined to reverse the drain of top talent that accompanied its opening to the outside world over the past three decades, they are using their now ample financial resources — and a dollop of national pride — to entice scientists and scholars home.**

The West, and the United States in particular, remain more attractive places for many Chinese scholars to study and do research. But **the return of Dr. Shi and some other high-profile scientists is a sign that China is succeeding more quickly than many experts expected at narrowing the gap that separates it from technologically advanced nations.**

**China’s spending on research and development has steadily increased for a decade and now amounts to 1.5 percent of** [**gross domestic product**](http://topics.nytimes.com/top/reference/timestopics/subjects/u/united_states_economy/gross_domestic_product/index.html?inline=nyt-classifier). **The United States devotes 2.7 percent of its G.D.P. to research and development, but China’s share is far higher than that of most other developing countries.**

**Chinese scientists are also under more pressure to compete with those abroad, and in the past decade they quadrupled the number of scientific papers they published a year**. Their [2007 total](http://science.thomsonreuters.com/info/grr-china/) was second only to that of the United States**. About 5,000 Chinese scientists are engaged in the emerging field of nanotechnology alone,** according to a recent book, “China’s Emerging Technological Edge,” by Denis Fred Simon and Cong Cao, two United States-based experts on China.

Non Unique – UK

Cuts to the UK’s science budget encourage researchers and scientists to find jobs in the US

Jha, science and environmental correspondent at the Guardian, 10 (Alok, The Guardian, September 23, “Science funding cuts could lead to brain drain”, access 7/7/11 <http://www.guardian.co.uk/science/2010/sep/23/science-funding-cuts-brain-drain> ) PG

**Cuts to the government's science budget will lead to a brain drain of talent from the** UK, according to John Krebs, chair of the House of Lords science and technology committee. In a letter to the science minister, David Willetts, Lord Krebs showed how **several leading researchers had already lost scientists to overseas universities and warned that a cut in funding, while other countries increased their scientific spend, would raise "significant risks" to the UK's scientific** [**research**](http://www.guardian.co.uk/education/research) **base.** In his letter to David Willetts, Lord Krebs wrote: **"As our competitors have recognised the importance of science to economic growth and have increased the proportion of funding for research, the competition for international talent will heighten**." He added: "Their evidence demonstrates that, in a world where talent is highly mobile, a widening of the funding differential, whether real or perceived, between **the UK and our competitors will put at risk the ability of the UK to continue to recruit and retain the very best brains and to maintain the highest standards of research, for which the UK is renowned and from which the UK has been able to reap significant commercial benefit."**

Non-Unique: UK Brain Drain Now

BBC News 11

(BBC News: “One in four UK workers 'would move abroad for work” 6-23-2011 <http://www.bbc.co.uk/news/business-13909598> MLF 7-5-11)

Research group GfK said 27% of 1,000 UK employees questioned were willing to change country, possibly driven by a desire to escape the high cost of living and static wages in the country. And just under a quarter were looking to leave their employer within a year. But other countries surveyed may be at a higher risk of a "brain drain", with Latin America potentially hardest hit. The proportion of workers willing to move country was highest in Mexico (57%) and Colombia (52%), while Brazil and Peru also saw high numbers (41% and 38% respectively). Even in the US and Canada - countries GfK describes as "traditionally stereotyped for their relative disinterest in living abroad" - a fifth of workers said they would leave to find a better job. 'Loss of talent' In the UK, the chances of a brain drain appear higher among younger workers with 36% of those aged 18-29 willing to move. Among higher educated workers, 36% of those with degrees and 38% of those with postgraduate qualifications said they would consider leaving. "Even if only a fraction of these people actually move abroad, UK businesses will face a significant loss of talent, just at the time they most need it," said Sukhi Ghataore from GfK. The GfK survey questioned more than 30,000 working adults in 29 countries.

Non Unique - Greece

Greece is already facing brain drain – the economic situation makes it worse

Gaunt, European Investment Correspondent, 11 (Jeremy, July 8, Reuters, “Greek students see their dreams recede”, <http://www.reuters.com/article/2011/07/08/us-greece-austerity-students-idUSTRE7671E320110708>) PG

The problem is that when a country's educated elite leaves, they have effectively been trained by one [economy](http://www.reuters.com/finance/economy) only to pay it back to another. **Greece is already suffering from something of a brain drain.**

DESPERATE TIMES

**Finding work in Greece is very tough, even beyond the eyewatering youth unemployment figure**.

**The overall unemployment rate has shot up to 16.2 percent from 6.5 percent in May 2008 and many of those who are in work fear for their job security.**

And this does not look like turning around significantly any time soon.

The economy is forecast by the new [finance](http://www.reuters.com/finance) minister to contract by 3.9 percent this year and next year's projection for growth has been cut by the European Commission to just 0.6 percent from 1.1 percent.

Even getting a business of your own up and running faces massive hurdles.

**"To start a new business is fairly easy," said Starakis, the business major. "But to make it run is almost impossible."**

**The students said even temporary summer jobs in Crete's busy tourist industry, enjoying some growth this year, were hard to find.**

Gaitanis said he was looking for a job as a waiter that would pay him around 700 euros a month, but that the big hotels along the sun drenched beaches were bringing in Russians, Poles and Ukrainians who would work for around 300 euros, which would be well below Greece's minimum wage.

Greeks have also complained in the past about immigrants such as Albanians taking plumbing work and the like, but many Albanians have left because prospects are so poor.

**Greece's economic decline has crushed businesses, destroying jobs in its wake.**

**Greek construction employment, for example, was around 400,00 in late 2007-early 2008. In May it was down to around 270,000.**

1. [↑](#footnote-ref-1)
2. [↑](#footnote-ref-2)