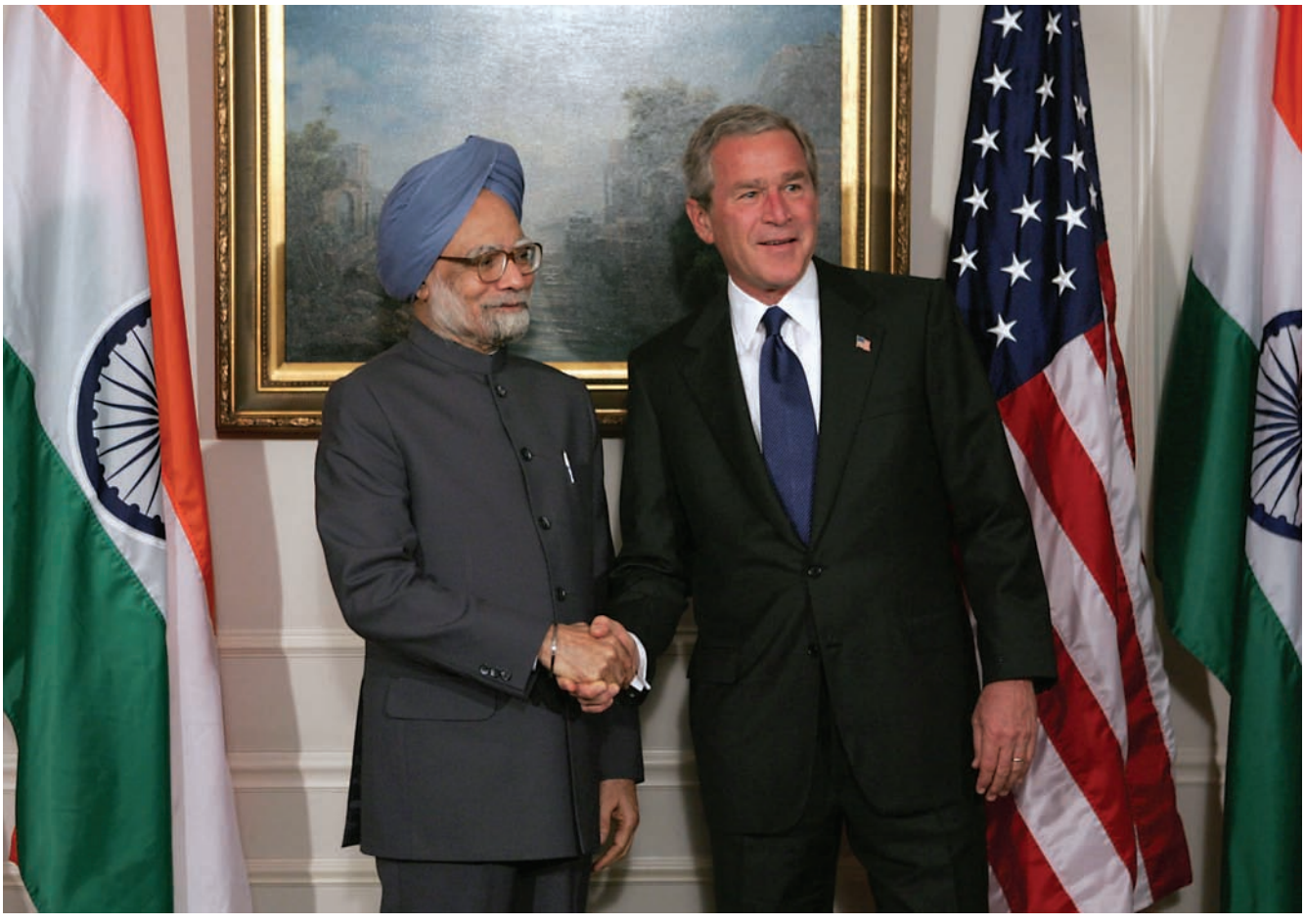
Report of the Joint Task Force of Pacific Council on International Policy and Observer Research Foundation

India-US Relations



A VISION FOR THE FUTURE

JUNE 2005

PACIFIC COUNCIL ON
INTERNATIONAL POLICY

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ABOUT ORF

Observer Research Foundation (ORF) is India's foremost multi-disciplinary, multiple-location think tank. It is engaged in promoting informed policy formulation and decision-making. The ORF team comprises some of India's leading analysts and researchers who are experts in their fields, including former ambassadors who are Distinguished Fellows.

PACIFIC COUNCIL ON
INTERNATIONAL POLICY

ABOUT PCIP

The Pacific Council on International Policy aims to promote better understanding and more effective action, by private and public sector leaders from the western United States and around the Pacific Rim, in addressing a rapidly changing world. The Council emphasizes the connection between global and local developments as national borders become more porous, traditional concepts of "public" and "private" blur, and what constitutes "policy" itself is changing.

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Cover photograph: **Indian PM Manmohan Singh and President George W. Bush at a bilateral meeting in New York City, N.Y. on Sept. 21, 2004**
White House photograph by **Eric Draper;** Courtesy: **American Center, New Delhi**
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EXECUTIVE SUMMARY

After decades of regarding each other with wary suspicion, India and the United States have moved rapidly from uneasy cooperation to incipient partnership. This welcome evolution has profound implications for the future.

What brought about this shift? This is not a question for historians alone. The answer should guide not only the understanding of the past but policies for the future.

One source of this change is geopolitics. The end of the Cold War removed the issue of India's relationship with the Soviet Union and lessened the US reliance on Pakistan as an anti-Soviet ally. Americans came to see India as a strong regional power that could help to maintain stability and balance in a turbulent world. The September 11 terrorist attacks created a sense of common threat that unites strategists in both India and the United States.

The progress toward partnership can be traced in the increasing frequency of high-level interaction between leaders in both countries. The visit of the Prime Minister Atal Behari Vajpayee to the US in 1999, when he described the two countries "natural allies" was followed the next year by President Bill Clinton's trip to India, the first by a US president in 22 years. This was a watershed in Indo-US relations and that heightened pace has continued during the Bush administration, hopefully to include a visit by President Bush to India.

India and the United States will continue to have differences in their strategic views. For example, the US relationship with Pakistan remains a source of concern and divergence. But the dynamic of partnership, regardless of who holds power in either country, remains strong.

To focus exclusively on geopolitics and security, however, misses the underlying driving force behind this voyage of rediscovery–economic and cultural globalization. The shift began with the decision of India in 1991 to end its long policy of import substitution and industrial protection and to open its economy for global competition. This led India to jettison autarkic economic policies and bred confidence in India's ability to compete. It also encouraged American businessmen, who had largely ignored India, to view the world's second most populous nation as a land of opportunity.

That profound redirection coincided with the Information Technology revolution in the 1990s. India, drawing upon its long-standing investment in higher education and science, created a globally competitive software industry. Breakthroughs in telecommunications and the digital transmission of data radically lessened the barrier of geographic distance for many facets of commercial transactions. That revolution defused power away from governments, empowering individuals and civil society.

Meanwhile, the IT revolution underway in the United States was fueled in part by a surge of immigration into the US by Indian engineers and entrepreneurs who became a

key part of the economy and culture of Silicon Valley. These entrepreneurs in turn encouraged their American counterparts to seek new opportunities in India. An affluent and increasingly influential Indian diaspora based in the US emerged, creating new bonds between the two countries.

Cultural exchange has grown alongside the economic and technological interaction. As India's youth have become globalized, it has shown a growing appetite for popular culture, much of it from the United States. And Indian cultural exports, from food and fashion to cinema, are finding a growing reception in the American marketplace.

All these breakthroughs have combined to drive a profound transformation of perceptions in both countries. Up until the late 1990s, the average American thought of India rarely, if at all. For the vast majority of Americans, India was associated with poverty or by orientalized images of maharajahs, palaces and elephants, nostalgic pictures from the British Raj. Images of the United States as a set of Hollywood clichés–violent, wealthy and arrogant—were also common in India.

These stereotypical images, particularly of India in the United States, are giving way. For many Americans, India is now just as likely today to be associated with technological innovation as with grinding poverty, with hip fashion as with tigers and elephants, with the latest movie sensation as with sitar concerts.

Perhaps the most telling sign of the shift in US perception is that India is now often referred to in American business conferences in the same breath with China. The two countries are paired as a common phenomenon, rising global economic powers that will dominate the future of this century.

This change is even more evident on the West Coast of the United States, in places such as Silicon Valley, Los Angeles and Seattle. The economy of this region is more tightly tied to Asia and the Pacific. The regional economy is more dependent on high technology, global culture such as the film industry and international trade. And in the Pacific West, the cultural impact of India and the growing presence of the Indian American community are more strongly felt there than in much of the rest of the United States.

Globalization, of course, is not free from controversy in either country, controversy that plays out in the context of two vibrant democracies. In both cases, the interaction of the global economy brings not only benefits but also some painful changes. In the United States, the outsourcing of employment in the service sector to Indian software houses and call centers has triggered deep anxiety. There are growing concerns that the jobs that have been lost will not, as has been true in the past, be replaced by new jobs. Outsourcing made India–for the first time in American history–an issue in the 2004 presidential election.

THE ECONOMIC & cultural globalization shift began with decision in 1991 to end its policy of import substitution and industrial protection and to open its economy to global competition. That profound redirection coincided with the IT revolution in the 1990s.

In India, the stunning upset results of the 2004 parliamentary elections also reflected the uneven results of India's entry into the global economy. Rapid growth has rewarded the urban middle class far more than the rural poor. The gleaming shopping malls outside Delhi have not changed the lives of pavement dwellers or farmers. Indian voters demonstrated a "revolution of rising expectations" caused by India's entry into the global market. All classes in India want the government to move faster but also to do a better job of distributing the gains of economic change.

Despite these difficulties, there should be no retreat from the intertwining of India and the United States. Indeed, steps must be taken to accelerate the momen-

tum of a transformation whose benefits flow both ways. Although the actions of governments are important, much of this change will necessarily remain in the hands of non-governmental actors, from the business community, to educators and cultural institutions.

Strategic differences will certainly occur. But strengthened economic and cultural ties will enable both nations to ride over those differences with lesser bumps. There are steps that both governments can take to insure that the inherent dynamism of the relationship realizes its full potential.

On this basis, a bilateral task force convened by the Pacific Council on International Policy and India's Observer Research Foundation met over the past year to consider how to strengthen ties between India and the United States. This is the first such policy study carried out on a bilateral basis, with experts from both countries joined in common deliberation. Reflecting its origins in the Western U.S., the Pacific Council brought both a clear orientation toward Asia and an emphasis on the economic and cultural dimension of the Indo-U.S. relationship.

The recommendations of this task force are aimed at:

- Removing barriers to strategic cooperation, particularly in the area of technology development.
- Expanding commerce between India and the United States.
- Promoting cooperation in science and technology.
- Strengthening cooperation in healthcare and education.
- Building new constituencies through culture and the Indian diaspora to deepen mutual understanding.

These reflect our understanding that progress in both countries rests on expanding the free flow of trade and ideas. Indians and Americans have to mobilize the energies of free people, ensuring a dynamic relationship between private initiative and the management of public affairs in both countries.

LOS-ANGELES SEPTEMBER 13-14, 2004: Delegates of PCIP-ORF at the conference

POLICY RECOMMENDATIONS OF THE PCIP-ORF JOINT BILATERAL TASK FORCE

ON ENHANCING STRATEGIC COOPERATION

Since the Indian nuclear tests in 1998, the United States and India have worked to overcome the restrictions on scientific and technological cooperation imposed by non-proliferation concerns. The Clinton administration began that process. It has accelerated during the Bush administration beginning with the lifting of sanctions imposed after the nuclear tests.

The signing of the Next Steps in the Strategic Partnership (NSSP) in 2004 was a major

JAMNAGAR: Delegates of PCIP-ORF at the oil refinery

move ahead. The NSSP aims at facilitating cooperation on civilian nuclear energy, space programs, high technology trade and a dialogue on missile defense. But while the aims are correct, the NSSP has failed to yield sufficient progress, particularly in areas such as nuclear energy cooperation. Restrictions on India's access to advanced technology–creating potential new markets for American industry–still remain trapped in the past. India is treated more restrictively, for example, than is China.

Most members of the task force believe that the barriers to strategic cooperation cannot be fully overcome without accepting India's status as a full-fledged nuclear power. The task forces recommends that the two governments:

- Support India's bid to join the Security Council of the United Nations as a permanent member.
- Provide India with access to civilian nuclear technology in exchange for putting newly built reactors under IAEA safeguards.
- Invite India to join the Nuclear Suppliers Group and the Missile Technology Control Regime and take steps to modernize Indian export control enforcement.
- Initiate a high level dialogue to remove India's reservations in joining the core group of the Proliferation Security Initiative.
- Remove India from the sensitive countries list governing the control of exports of strategic technology from the United States. What is permissible for China should not be denied to India.
- Expand areas of technological cooperation under the Next Steps in Strategic Partnership between India and the United States.

ON EXPANDING COMMERCE

Economic liberalization in India has opened up substantial opportunities for trade in goods and services in the last decade. Improvements in Indian income levels have spurred consumer demand for world-class products, particularly among young, urban middle-class Indians. The rapid emergence of the IT and business process industries in India has captured the imagination of investors in the United States. The IT sector in India is very much a product of the post-reform environment. It has thrived largely free of government regulation and control.

INDIA TODAY is a strong regional power that can help to maintain stability in a turbulent world, particularly in Asia. Since 1999, US and India have worked to overcome the restrictions on scientific and technological cooperation imposed by non-proliferation concerns.

India's role in the global economy, as measured by trade in goods and services, has grown rapidly. India-US trade has exploded as well. This is particularly true for the West coast of the United States. California is India's largest export partner in the US. Washington state ranks sixth. Service outsourcing to India is being led by firms in Silicon Valley and Seattle.

The joint task force recommends these steps to expand commerce between the two countries:

- Open discussion on forming a Free Trade Agreement between the two countries.

MARCH 18-19, 2004: Participants of the ORF-PCIP conference in Jamnagar, India

- Encourage greater Foreign Direct Investment in India by removing limits on majority foreign ownership.
- Carry out a regulatory review with the aim of easing entry of both US and Indian firms into various fields in both countries, including banking, private equity and venture capital.
- Promote public awareness in the United States of the benefits as well as the costs of globalization and outsourcing, which remain a volatile political issue.
- Strongly support the Indian government's current emphasis on investment in physical and human infrastructure, including energy, road and rail, and primary education. Look for new opportunities for private investment in infrastructure creation.
- Harmonize legal protection of intellectual property rights; tighten Indian enforcement of laws against piracy of intellectual property.

ON PROMOTING COOPERATION IN TECHNOLOGY AND INNOVATION

Innovation in scientific and technological applications is the lynchpin of economic success in the twenty-first century global economy. India and the United States each play unique roles in this economy. India offers a significant population of highly trained scientists and technological specialists, while the United States remains the global leader in this area, with a huge research and development infrastructure and a business culture that rewards risk. While the two countries may compete in some areas, they offer great potential for collaboration. Such synergies not only can improve living standards in India–they also can improve quality of life for Americans and expand economic opportunity.

The joint task force calls on governmental and non-governmental actors to explore new avenues to promote cooperation in science and technology, including:

- Strengthen and increase the funding of the Indo-US Science and Technology Forum, which generates public-private partnerships to promote innovation and scientific entrepreneurship.
- Encourage partnership in basic research between Indian and US universities and corporations.
- Pursue cooperation in development and production of new technologies of mutual interest in key areas, including energy efficiency, nanotechnology, distributed power generation, waste management and information technology security.

ON STRENGTHENING HEALTHCARE AND EDUCATION

The areas of healthcare and education offer special opportunities to increase interdependence between India and the United States to the benefit of both countries. India can provide capabilities to help cut healthcare costs in the United States. India has public health challenges that can only be met with considerable US help.

In the field of education, Indians have become an indispensable part of U.S. basic research in science, engineering, and technology. Conversely, reforms in India's higher education system require opening the doors to investment from the US Institutions in both countries could form a partnership to build a higher education hub for Asia in India.

The joint task force recommends these steps to strengthen healthcare and education:

- Encourage India's role as low-cost producer of generic drugs and developer of cost-effective new drugs, including for export to the US.
- Support the conduct of world-class clinical trials in India, including clinical research in Indian hospitals.
- Use India to lower American healthcare costs through information technology, lower drug costs and outsourcing of medical services.
- Provide additional research and treatment support to combat the growth of HIV-AIDS in India.
- Remove Indian barriers to foreign investment and ownership in education, particularly higher education.
- Promote mutual accreditation between Indian and US educational systems.
- Relax Indian visa regimes for foreign students and scholars.
- Strongly encourage removing visa barriers to the flow of Indian students to the U.S. raised by post 9/11 security measures.

ON ENGAGING NEW CONSTITUENCIES: DIASPORA, MEDIA AND CULTURE

The growth of the India-United States partnership and alliance depends on the expansion of the ties between our two peoples. The last decade has seen a tremendous leap in American awareness of India. In India, a young, increasingly globalized population has developed an enthusiasm for American consumer culture. Through the transmission belt of the Indian American community, mutual understanding is deepening.

Much of this is outside the realm of government. Ideas and culture flow through the mediums of literature, cinematic arts, television, media and people-to-people exchange. To encourage this flow and to provide an institutional framework to promote it further, the joint task force recommends:

- Facilitate access to the United States for Indian performers, filmmakers, authors and other cultural and entertainment workers.
- Ease visa approvals for Indian students, visitors, scholars and family members of U.S. citizens and permanent residents.
- Encourage venture capital funding to Indian ventures in media and entertainment.
- Draft a joint agreement on film, video and television co-production.
- Combat copyright theft.
- Declare 2006 the "Year of India" in the United States and the "Year of the United States" in India.
- Establish a broad organization in the US to promote cultural understanding on the model of the Japan Society.

PREFACE

Ambassador Abid Hussain
and **Ambassador Richard Celeste**

ABOUT 18 MONTHS ago the joint task force of the Pacific Council on International Policy and Observer Research Foundation (India) decided to mount a bi-national study to take a fresh look at relations between India and the United States. This enterprise was visualized by Mr. R K Mishra, the dynamic Chairman of ORF, who has a knack to cut through the complexities of most contentious issues. This study was agreed to be undertaken by two of us—Ambassador Celeste and his group from the US and Ambassador Abid Hussain and his group from the Indian side. This is the first policy study carried out on a bi-lateral basis, with experts from both countries joined in common deliberations. The Pacific Council brought a clear orientation towards Asia and the ORF emphasized the growing economic and cultural dimensions of Indo-US relationship. It was also agreed that such an endeavor would be rooted in a West Coast experience—less pre-occupied with strategic issues which captivate Washington and New Delhi and instead oriented across the Pacific approaching India from a different perspective and similarly India looking at the west side of America not in lieu of the rest of America.

We have held two extended conversations among our two groups and eminent people from outside with a broad reach of engagements were consulted. In each instance we met far from our nation's seat of power. And during this period both the United States and India underwent national elections.

While our dialogue recognized certain strategic issues as vital to our bi-national relationship and identified what we believe is a growing convergence of interest, we found that the emerging partnership—not too strong a word in our view—is rooted in deeper bonds which have been fashioned over time (and sometimes almost out of sight); what is particularly interesting and fresh is the degree to which these bonds transcend momentary political trends.

It is heartening, and a proof of continuity and strengthening Indo US partnership, that after the elections and change of Government in India, the high-level contacts between the two nations have further increased. There have been regular and productive meetings between Secretary of State Rice and Minister for External Affairs Natwar Singh, Defence Secretary Rumsfeld and Defence Minister Pranab Mukherji, and close interaction between Prime Minister Manmohan Singh and President Bush.

Yes, public policy plays an important role—and we point out a number of opportunities to nurture and strengthen our partnership. But what is exciting is how much of the energy of this extraordinary relationship derives from a vast array of private initiatives—scientists collaborating over the internet, venture capitalists introduced by friends, college recruitment trips, film festivals, fashion shows and Americans of Indian origin returning from family visits.

Our first inkling for this change came from a variety of incidents in which interest of complementary nature became evident and an instance in this regard was that of Kanwal Rekhi who had visited Ambassador Celeste in his offer to tell him about TIE (The Indus Entrepreneurs), a group of Silicon Valley Teachers of South Asian origin who had organized to support each other in their business aspirations. From their success and lessons some decided to visit India and share their lessons with government policy-makers including India's Prime Minister. Such successful visits from either ends set up a trend for exchanges and provided a platform to have a dialogue with the representatives of the government which proved to be far superior to anything at the command of embassies. This led to an up-swing in interaction between the two countries. One could feel the advent of a soft summer of good relations.

We urge you to read this report with care. We believe you will sense something of the energy and talent that infuse this remarkable relationship and have set it on such a promising trajectory. Can things go wrong? Yes they could if we lose sight of the values that draw us close. We need to keep a watch on it.

This report spells out a number of concrete steps which can be taken on both sides—by our governments and our civic and business leaders—to enhance what is a dynamic and beneficial partnership. The smell of success is in the air.

Ambassador Abid Hussain

Ambassador Richard F. Celeste

A NEW RELATIONSHIP FOR A NEW CENTURY

The broadening of the canvas has opened up the India-US relationship to enlarged possibilities of cooperation. Though both countries still do not agree on Pakistan, they have resolved not to let this disagreement impede their relationship in other areas.

THE END OF THE BIPOLAR WORLD: A NEW BEGINNING

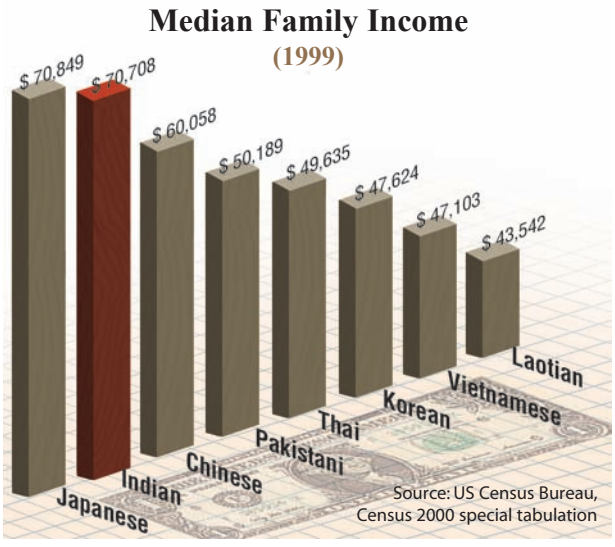
India and the United States have historically embraced very different conceptions of the global order. During the Cold War, the United States wanted to enlist as many states as possible in its war against communism, often in a formal strategic alliance. America's support to Pakistan on the Kashmir issue in the United Nations beginning in 1948 and the creation of military ties in 1954 cast an irrevocable shadow on the relationship. India viewed the logic of American alliances as directly contravening its own interests.

The United States for its part saw India's policy of nonalignment as little more than a sanctimonious cloak for interests which contradicted those of the United States. India's neutrality was less than neutral, as belied by the country's silence over the Soviet invasion of Hungary and Czechoslovakia in 1968. As Harold Gould perceptively wrote, the gap between the stated claims of both countries on the one hand, and their actual interests on the other "made it impossible for the United States to live up to its moral billing in Indian eyes and conversely, for India to live up to its moral billing in American eyes...both sides had come to the relationship expecting too much of each other."

The end of the Cold War eased the pressure on the relationship. First and foremost, the United States became the single dominant power. One of the irritants of Indo-US relations, India's perceived closeness to the Soviet Union, simply ceased to be a factor.

Coinciding with the end of the Cold War, in the early 1990s, India began a slow but sure integration into the world economic order. India's conception of its national interest became premised on greater economic engagement with the world, giving greater centrality to trade and investment, and thus allowing for new avenues of cooperation. This shift prepared the way for cooperation across an astonishing range of activities, including defense and law enforcement.

These broad transformations in the geopolitical and economic landscape have allowed the relationship to move beyond a preoccupation with two issues. For the United States, India became much more than simply a nuclear non-proliferation problem. For India, the relationship with the United States was no longer viewed primarily through the lens of the India–Pakistan relationship, although US military support to Pakistan remains a factor in the Indian public mind.



This broadening of the canvas has opened up the India-US relationship to enlarged possibilities of cooperation. It also insulates the relationship from being held hostage to a single litmus test. India and the United States still do not agree on Pakistan, but they have resolved not to let this disagreement impede their relationship in other areas. There is a prima facie case for an improved relationship for both countries in the pursuit of their national interests.

OVERCOMING STRATEGIC DIFFERENCES

This newly propitious environment for greater cooperation emerged despite the fact that the core strategic and political interests of the two countries still diverged considerably. This divergence had two sources. The first was India's preoccupation with its two neighbors, Pakistan and China. The United States was perceived to be insensitive to the challenges they posed to India's interests. The relationship between India and the United States thus remained hostage to the imperatives of India's relationships with its neighbors.

The second source of divergence was India's independent nuclear program. India refused to abide by the terms of an international nuclear framework it regarded as inequitable and to fully embrace the United States non-proliferation objectives. India's nuclear tests in 1998 brought it under a whole range of US-imposed economic sanctions and technology restrictions.

By this time, however, the two countries had already become so interlinked that it was simply impossible for the United States to turn its back on India. It is an extraordinary testament to the resulting strength of the relationship that within six years of the tests at Pokhran, the two countries signed the Next Steps in the Strategic Partnership (NSSP) in 2004. This landmark agreement aims to facilitate cooperation on civilian nuclear energy, space programs, high technology trade and a dialogue on missile defense.

While the agreement provides a framework for dialogue, it does not remove many significant restrictions on Indo-US high technology cooperation. Indeed, India is still on a list of sensitive countries facing technology export restrictions. In this respect, it has not even been accorded the status of China. The NSSP falls short of achieving what India wants–formal admission to the nuclear club.

THE ENVIRONMENT for cooperation emerged despite divergence on core strategic and political interests. This divergence had two sources. First was India's preoccupation with its neighbours, Pakistan and China. The second was India's nuclear program.

The NSSP, however, has created a novel umbrella for the United States to engage India without yet formally accepting its status as a full-fledged nuclear power. It permits the United States to begin to lift the restrictions and sanctions India would otherwise be subject to because of its nuclear policies. Given the state of relations in 1998, this is a considerable improvement, and there is a mutual understanding to expand the scope of the NSSP.

The interests of the United States and India will, in all likelihood, continue to diverge in this area. The United States has a vital interest in nuclear non-proliferation and in tightening international controls and safeguards over the nuclear fuel cycle so as to prevent

the spread of nuclear weapons to countries such as Iran. Although there is de facto acceptance of India and Pakistan's status as nuclear weapons states, American laws constrain the latitude of any administration to openly accept new members to the nuclear club.

It is equally unlikely that Washington will get what it wants: a kind of pre-emptive veto over future weapons developments by India. Indeed, it is very likely that any attempt by Washington to curb India's autonomy in the area of a nuclear program would aggravate the relations between the two nations.

India, despite pursuing an independent path, has served non-proliferation interests well by a relatively tight export-control regime. The two countries share common concerns regarding the proliferation of nuclear capability and the threat of the spread of sensitive technology to terrorists. The United States should not view the NSSP regime as a unilateral concession to India. If India were to behave differently, as China and Pakistan have, US non-proliferation objectives would be easily subverted.

NSSP PROVIDES a framework for dialogue but does not remove many significant restrictions on Indo-US high technology cooperation. India is still on a list of sensitive countries facing technology restrictions. India has not even been accorded the status of China.

Ultimately, the United States should accept India's status as a full-fledged nuclear power. Short of India's accession to the Nuclear Non-Proliferation Treaty as a weapons state, it should become a full or partial member of the Nuclear Suppliers Group and the Missile Technology Control Regime.

Certainly, it is unreasonable to expect a coincidence of views on many international issues between India and the United States, regardless of who is in office in either country. One measure of this is their voting patterns at the United Nations. On a range of issues from human rights, global trade standards, environmental regimes, the Middle East, their voting coincidence has never increased beyond twenty-three percent in any single year and averaged approximately twenty percent through much of the nineties. In 1999 India was placed amongst the sixteen countries that had voted less than twenty-five percent of the time with the United States, compared to an almost ninety percent coincidence between America and its closes allies, the United Kingdom and Israel. Even in the period of thaw of Indo-US relations during 2001-2003, the voting coincidence has not risen above twenty-two percent.

Is the strategic relationship between India and the United States asymmetrical? It would appear that India needs the United States more than the United States needs India. For the United States, good relations with India are desirable but not essential, whereas they remain essential for India. This is not a surprising in light of the vast gulf that separates the technological and military prowess of the two nations. However, this asymmetry may be less pronounced than it appears. And it is bound to diminish over the next several decades to the advantage of both countries.

The illusion of asymmetry is sustained by a myth that the United States can go it alone and can run a world order in its own image. The Indian view is that the world can be made more stable and managed better only through a network of alliances. In its second term, the Bush administration has emphasized this idea as well, reaching out to allies in Europe and Asia with a newly cooperative tone.

The United States will continue to assert its global leadership. Yet in Asia, the United States must deal with two emerging powers—India and China—that seek a global role.

India has important strategic interests in its region, up to and including Southeast and Central Asia. It will want to maintain close ties with the Middle East (West Asia), on its own

INDIA MAY remain unwilling to join a formal security system in Asia. The recent ad hoc alliance between India, Australia, Japan and the US to manage emergency assistance following tsunami is a sign that India and the US can join forces to work together for specific regional crises.

terms. India's energy security policies in the face of rapidly rising energy demand have already led to differences with the United States. It is doubtful that such independence will always be fully compatible with the United States' own strategic aims in the region, or even on the global level.

While India may remain unwilling to join a formal security system in Asia, the recent ad hoc alliance between India, Australia, Japan and the United States to manage emergency assistance following the December 2004 Indian Ocean tsunami disaster is a sign that India and the United States can join forces to work together to deal with specific regional crises. It sets an important precedent for future India-U.S. cooperation in the region.

The second Bush administration has quickly underlined the strategic importance of its relationship with India, acknowledging India's rising global status. The change in government in India did not, as some feared, alter the dynamic of this relationship. This resilience, under the pressures of democratic opinion in both countries, is a clear indication of the underlying strength of the ties that bind both countries.

IN ORDER TO ENHANCE STRATEGIC COOPERATION BETWEEN INDIA AND THE UNITED STATES, THE BINATIONAL TASK FORCE OF THE PACIFIC COUNCIL ON INTERNATIONAL POLICY AND THE OBSERVER RESEARCH FOUNDATION RECOMMEND THE FOLLOWING STEPS:

- Support India's bid to join the Security Council of the United Nations as a permanent member.
- Provide India with access to civilian nuclear technology in exchange for putting newly built reactors under IAEA safeguards.
- Invite India to join the Nuclear Suppliers Group and the Missile Technology Control Regime and take steps to modernize Indian export control enforcement.
- Initiate a high level dialogue to remove India's reservations in joining the core group of the Proliferation Security Initiative.
- Remove India from the sensitive countries list governing the control of exports of strategic technology from the United States. What is permissible for China should not be denied to India.
- Expand areas of technological cooperation under the Next Steps in Strategic Partnership between India and the United States.

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INDIA: ONE OF THE WORLD'S FASTEST GROWING ECONOMIES

In the last decade, India has joined the world economy as a partner, a competitor and as a market. Economic liberalization and rapid economic growth have opened up substantial opportunities for trade in goods and services in the last decade.

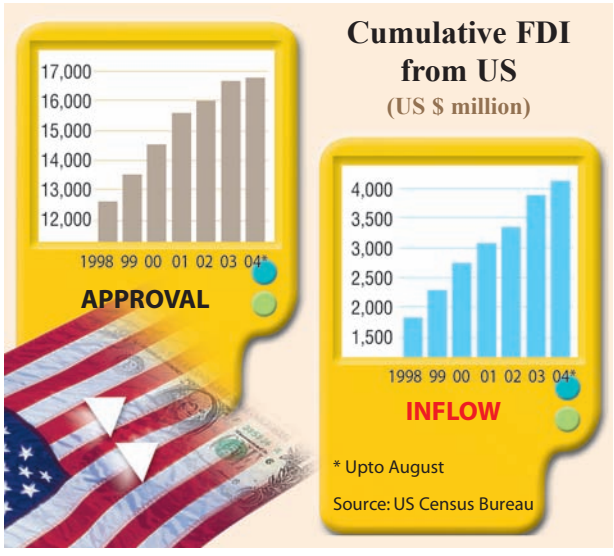
In the last over a decade, India has joined the world economy as a partner, a competitor and as a market. Economic liberalization and rapid economic growth have opened up substantial opportunities for trade in goods and services in the last decade. Trade, as a percentage of India's GDP, has grown from 21 percent in 1991 to 32 percent in 2002, a jump of 50 percent, matched only by a handful of countries. During this period, GDP growth in India recorded a compounded rate of 5.7 percent, one of the highest in the world. Some analysts now predict the economy of India in purchasing power may surpass the size of Japan's economy by 2050.

India's growth has been led by Information Technology (IT) and IT-enabled services. India's institutional infrastructure—its higher educational system, its legal system, financial capital markets and banking system—has become a source of global competitive advantage. There is a growing demand, with widening applications, for India's highly educated, technically competent young population.

Rising income levels, particularly among young, urban middle-class Indians who are employed in the globalized sectors of the Indian economy, have spurred consumer demand for world-class products.

Trade between India and the United States has been growing apace. Indian exports to the United States have been increasing steadily at an average annual growth rate of around 11 percent since 1993 and US exports to India have been growing at an annual average rate of 6 percent. India's exports to the United States stood at $13 billion in 2003 whereas US exports to India were at the level of $5 billion. Trade opportunities are expanding against the larger backdrop of cooperation in the development of high technology, the integration of financial markets, and the joint development of world-class services.

The west coast is a particularly important trade partner with India. Of all the US states, California is India's largest export partner—Washington ranks sixth. High-technology industry centered in California's Silicon Valley and the Seattle region is closely integrated with Indian software and service outsourcing firms. A large number of high technology start-ups



rely on Indian-based programs and designs. There is a significant rise in media services to India in such areas as television and animation, while exports of entertainment content are increasing in both directions.

INDIA STILL LAGS BEHIND IN WORLD ECONOMY

Still, while trade in goods and services with the United States has grown, it lags well behind others. India ranks only 25th among US goods trading partners, below even the Philippines or Thailand.

Overall, India's role in the world economy is still quite small, especially when compared to its potential and to its commercial rival, China. While India had a 2.2% share of global goods exports in 1948, its current share is around 0.7 percent. Its combined share of goods and services exports in 2003 was 0.9%, about a sixth of China's 5.2% share.

Another key measure of global competitiveness is the trend in long-term capital flows, reflecting the rest of the world's participation in a country's growth. India's share of global Foreign Direct Investment (FDI) remains poor at less than 1%, compared to China's share of 12%. Even Mexico receives about double the current inflow of FDI to India.

Given India's relatively low savings rate, compared to other high-growth Asian economies, increased FDI is vital. This is particularly true in the area of manufacturing which has not yet achieved the global competitiveness of the service sector. The barrier to increased FDI lies less in regulatory reform, though there are still opportunities there, than in dramatically increasing investment, both public and private, in physical infrastructure.

Although Indian policymakers recognized the importance of infrastructure investment, investment levels are still very low. China is spending over eight times as much as India in this area. Total capital spending in 2002 on electricity, construction, transportation, telecom and real estate was 20 percent of China's GDP, compared to 6 percent in India. Areas such as highways, power generation and distribution and ports are critical bottlenecks—though telecom is the one area where there has been significant improvement in India.

The one exception to this trend, as we will discuss further below, is venture capital flows, where India is the largest recipient of venture investment outside of the United States.

INDIA'S ECONOMIC growth has been more domestically-focused, gradual, and service-based. India's IT-led upsurge is the product of not only Indian entrepreneurship and skill but also a unique melding of the economic capabilities of the United States and India.

SERVICES: THE ENGINE OF INDO-US ECONOMIC EXPANSION

China chose the path of rapid, export-led, manufacturing-based growth. India's economic growth has been more domestically focused, gradual, and service-based. Increasingly, however, the service sector has become the engine of high growth, led by the export of IT and IT-enabled services.

India's IT-led upsurge is the product of not only Indian entrepreneurship and skill but also a unique melding of the economic capabilities of the United

States and India. The dynamic synergy between Indian and American software and IT hardware firms has now become the stuff of business magazine cover stories. It is also a source of tension resulting from the outsourcing of operations from the United States to India and the shift of employment in those industries to lower-cost India.

Those tensions need to be carefully managed but we believe that the rapid expansion of this collaboration is in the self-interest of both countries. The scale of this sector and its rapid growth are remarkable.

Worldwide spending on ITES-BPO (IT-enabled Business Process Outsourcing) is expected to increase to $1.2 trillion by 2006. The US accounts for 59 percent of total worldwide spending, with the Americas being the largest region for ITES-BPO spending. North America accounted for 69 percent of Indian software exports in 2002-03, while India remains an attractive destination for offshore outsourcing, offering considerable advantages. These include English-speaking and skilled manpower, regional information technology clusters, and good telecommunications infrastructure. India's rapidly growing software sector in India is boosting service exports and modernizing India's economy. Revenues from the IT industry are expected to cross $20 billion in 2004-2005

IN THE BUSINESS process arena, Indian firms are moving into higher value-added services. Customer care, administration, and content development dominate the ITES-BPO industry but engineering, R&D, logistics and sales will be the key areas in the coming years.

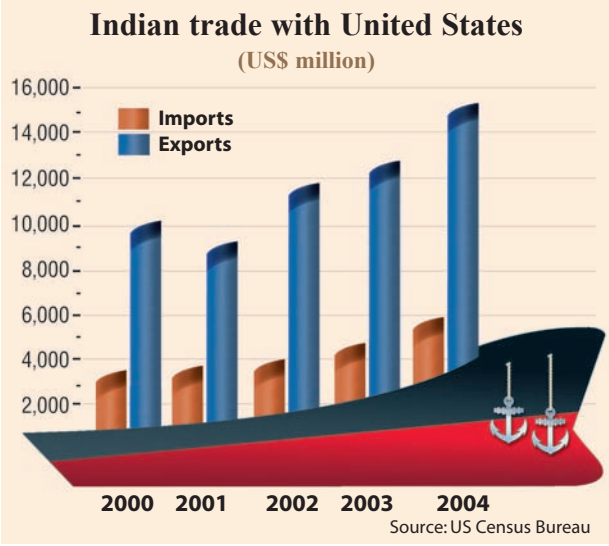
Indian software firms made their mark initially at the commodity end of the industry, for example rewriting the software codes to deal with the Y2K problem. In the BPO arena, Indian firms offered call center services in a variety of areas from computer technical support to credit cards. Gradually they have moved up the value chain in both software development and business processes. India has become a leader in remote software development for developed markets. And multinational corporate demand continues to outstrip supply.

A key concern for India is that higher value-added components—such as software development consulting, design and integration—remain in the United States, forcing Indian firms to compete only for coding projects. These already comprise about 90 percent of the Indian software industry's work, with India's global market share at 10 percent. However, coding accounts for only 25 percent of the cost of the average software project.

Indian firms are offering IT consulting and system integration, and are also exploring network consulting and integration, hardware support and installation, and processing services outsourcing. In the business process arena, Indian firms are moving into higher value-added services such as equity research and analytics, insurance, and technology support and development. Customer care, payment services, administration, and content development dominate the ITES-BPO industry but engineering, R&D, logistics and sales will be the key areas for Indian companies in the coming years.

Many US firms, such as American Express, J.P. Morgan Chase and G.E., are successfully outsourcing operations to offshore locations including India. J.P. Morgan Chase has offshored wholesale banking and research functions to its BPO center in India. Silicon Valley giants such as Oracle, Intel and Cisco have set up significant operations in India.

G.E., the pioneer in this area, has established a significant pool of Indian talent at its center in Bangalore, with Indian scientists and engineers working on research and development in diverse areas including electronic and electrical system technology, ceramics and metallurgy, polymer science and new synthetic materials, power electronics, and analy-



sis technologies. More than 65 percent of the center's employees have advanced degrees and the center has already filed for more than 17 patents.

THE OUTSOURCING ADVANTAGE

Outsourcing offers a win-win situation for both India and the United States. Outsourcing creates jobs in India and offers increased efficiency and profitability for US companies, resulting in high-quality, low-cost services to US customers.

But the benefits of offshore outsourcing of services, as was the case with manufacturing, do not flow evenly. While American consumers and companies may benefit, American workers are losing their jobs to lower-cost labour in India and elsewhere. The data clearly linking outsourcing to job loss in the United States during the last several years is far from clear. Most analysts have concluded that job loss in the IT sector is due more to technological innovation and to the business cycle.

After the US presidential election in 2004, there seems to be a belief in business circles that the outsourcing issue has lost its emotional and political punch. This may be a premature conclusion. The impact of the long-term shift of service industry employment overseas is far from clear. And there is a need to promote public policies to ease the impact of job loss clearly associated with such shifts. Indian IT firms need to be sensitive to those concerns while continuing to make the argument for the mutually beneficial nature of IT-related service outsourcing.

This is particularly true as Indian and American firms push business process outsourcing activity in India up the value chain from low-end applications, such as medical transcriptions and call centers, to high-end applications, such as remote medical services where Indian doctors diagnose the MRI results of American patients. New market opportunities are available to use Indian expertise in finance, real estate, insurance and healthcare. The United States has strong capabilities in these areas, and both countries could benefit from leveraging the other's skill sets. Though several strategic challenges exist, there are no significant cross-border policy issues here.

THE IMPACT OF the long-term shift of service industry employment overseas is far from clear. And there is a need to promote public policies to ease the impact of job loss clearly associated with such shifts. Indian IT firms need to be sensitive to those concerns.

India is the global leader in developing business processes among developing countries. The main focus of the work in India is on claims processing and document management for the financial services industry. While a few Indian firms are successful, the field is dominated by multinationals doing in-house work, such as Hewlett-Packard. Annual growth rates are expected to be about 70 percent in the near term.

Under-explored opportunities for India, especially in the area of healthcare, could have important potential benefits for US companies and consumers. India has adequate skills in some fields such as bookkeeping and auditing, but lacks skills such as regulatory compliance according to US standards for medical claims and benefit processing.

The number of patent applications in business technologies (BT), IT including software, IT hardware, agri-

culture, drugs and electronics are likely to rise rapidly during the coming years. With a likely shortage of manpower in the United States, both at the level of attorney firms and at the US Patent and Trademark Office, India's strengths and ability in patent searches and drafting of patent applications could be fruitfully used by outsourcing these activities to India. A few US companies have already set up their offices in India for this purpose.

There is also significant opportunity for India in taking up high-end research and development work, especially in engineering design, pharmaceuticals, biotechnology, and equity research. Pre-clinical trials and drug delivery assessment, as well as early research activity could be done in India. Integration of software with production capabilities, particularly in engineering products and automobiles, is yet another area of opportunity for India.

THE INDIAN government needs to spend more on information technology infrastructure and to improve access by foreign multinationals. Enforcement of laws against piracy and other intellectual property issues remain areas of serious concern for the US.

For Indian firms to compete effectively for the higher value work, multinational firms need to feel more comfortable shifting advanced R&D and other project development to India. The Indian government needs to spend more on information technology infrastructure and to improve access by foreign multinationals through higher FDI limits and better protection of intellectual property rights. Enforcement of laws against piracy and other intellectual property issues remain areas of serious concern for the United States.

VENTURE CAPITAL: AN EMERGING FORCE FOR GROWTH IN INDIA

American venture capital firms are beginning to see India as an investment opportunity. The economies of most of developing Asia rely on US risk capital primarily for manufacturing, with sources of foreign capital for their services sector remaining mostly indirect (primarily government-guaranteed capital or stock markets). In contrast, India encourages the participation of direct foreign risk capital in services. This difference cannot be overstated.

The hardware design and assembly fields are still very small in India and are dwarfed by several other countries in Asia, such as Taiwan, Korea, China, Malaysia, Singapore and Indonesia. The challenges for India are a late start and poor infrastructure.

However, this is changing. Indian Americans have helped to spur interest at venture capital firms in Silicon Valley. Following capital regulatory reforms in 2000, venture capital in India has grown from a $30 million-a-year industry to over $1 billion invested per year, making it the second largest in the world after the United States. While the initial focus of capital ventures was, following the US lead, on internet content, investment has now diversified.

There are estimated to be over one hundred active venture capital firms in India, with sources of capital that are both international (institutional and individual) and domestic, although the former predominates. Although venture capital firms tend to avoid startups in software services and products, there is considerable support for business processes, R&D, and hardware design and assembly.

Venture capital firms still face discriminatory regulation in India, despite the 2000 reforms. For example, Indian domestic venture capital firms cannot freely invest in overseas startups and are forced to invest in their Indian subsidiaries, if such exist. They then face problems relating to divestment when the parent receives a buy-out offer. It is important for the Indian government to support their efforts.

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Simple things such as the relative difficulty in travelling to India versus travelling to Taiwan have posed challenges. Foreign venture capital firms also face several problems in India. Without an India-US tax treaty on capital gains, as they now have on ordinary income, most choose a tax haven, such as Mauritius, to invest from. Even then they must get central bank approval for each investment and divestment. This then leads to a large bureaucracy needed to handle even simple matters such as leasing office space. Both foreign and domestic venture capital firms trying to do business in India must contend with archaic rules, such as the inability to structure board control independent of shareholding.

RECOMMENDATIONS

Both government and business in India and the United States need to move quickly to remove the barriers to expanding commerce between the two countries. The joint bilateral task force of Pacific Council on International Policy and Observer Research Foundation recommends the following steps to accomplish this goal:

- Open discussion on forming a Free Trade Agreement between the two countries.
- Encourage greater Foreign Direct Investment in India by removing remaining limits on majority foreign ownership.
- Carry out a regulatory review with the aim of easing entry of both US and Indian firms into various fields in both countries, including banking, private equity and venture capital.
- Carry out ongoing studies on the benefits and costs of globalization and outsourcing, with the aim of promoting public discussion and policy ideas.
- Strongly support the Indian government's current emphasis on investment in physical and human infrastructure, including energy, road and rail, and primary education. Look for new opportunities for private investment in infrastructure creation.
- Harmonize legal protection of intellectual property rights; tighten Indian enforcement of laws against piracy of intellectual property.
- Review business standards in both India and the US to increase commonality and cross-country certification.
- Negotiate an India-US tax treaty on capital gains.

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TECHNOLOGY: THE KEY TO SUCCESS IN 21ST CENTURY

Scientific and technological innovation is the lynchpin of economic success in the global economy. India and the US play unique roles in this economy. India possesses world-class scientific and educational institutions and the US remains the technological global leader.

Scientific and technological (S&T) innovation is the lynchpin of economic success in the twenty-first century global economy. India and the United States each play unique roles in this economy. India possesses world-class scientific and educational institutions that produce a significant population of highly trained scientists and engineers. The US remains the technological global leader, combining a vast research and development infrastructure with unmatchable capital resources.

The dynamic impact of combining the technological capabilities of India and the US has already been demonstrated in the area of information technology. High-technology trade can play an even greater role in expanding commerce between India and the US and in reducing the current bilateral trade imbalance.

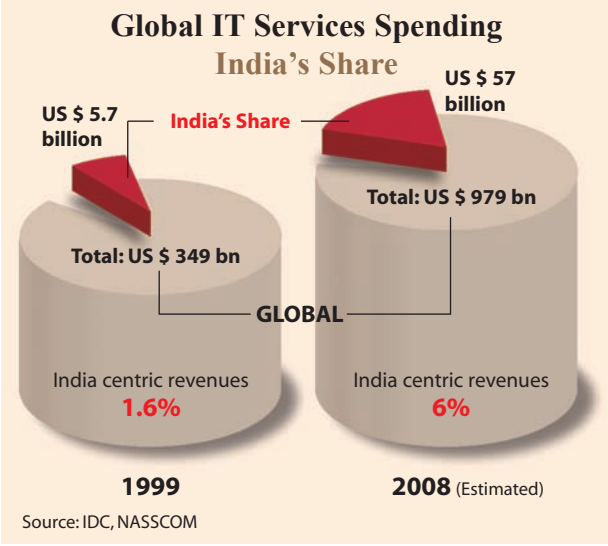
While the two countries may compete in some areas, there is still vast untapped potential in many areas of technological cooperation beyond IT. Such synergies not only can improve living standards in India, they can also improve the quality of life for Americans and expand economic opportunity.

Whether it is clean technologies for power generation or access to GPS data on the location of fish for small-scale fishermen, scientific and technological solutions aimed at elevating the quality of life for India's urban dwellers and rural poor can also benefit citizens in the US. Innovative applications in biotechnology, for example, promise significant improvements in healthcare, agriculture and food preservation for citizens of rich and poor countries alike, while offering expanding markets for business.

This joint task force examined a number of areas of potential technological collaboration. Some, such as environmental technologies, offer significant opportunity and utility. But none are as crucial, and so clearly demonstrate the unique value of combining the resources and interests of India and the US, as energy. Before discussing energy technology, it is necessary however to first look at the policy environment that shapes science and technology cooperation between India and the US.

S&T COOPERATION BETWEEN INDIA AND THE UNITED STATES

There has been much progress over recent years in expanding scientific and technological cooperation, driven in large part by private industry but also by the government. But there



remain barriers to high-technology commerce and cooperation, legacies of the past, which can only be overcome through concerted efforts on the part of both governments.

Scientific and technological cooperation between India and the US has been ongoing for several decades through a variety of formal mechanisms. These included the Joint Commission on Economics & Commerce, Science & Technology, Education & Culture, and Agriculture (1974-1983), the Science & Technology Initiative (1983-1991), and the US-India Fund (1987-1998).

The pace of activity of all these programs was slower than desirable. A new "Indo-US Science and Technology Forum" was created in March 2000 by a formal agreement between the two governments. It was set up as a private foundation "to facilitate and promote the interaction in India and the US of government, academia and industry in science and technology." An endowment was created and some promising projects have been initiated under the Forum.

This effort needs to be expanded through the formation of a more pro-active Indo-US Science Foundation that would have significant funding from both governments to fund collaborative research and development projects. Such a foundation could follow the model of the BIRD Foundation, the Israel-US Binational Industrial Research and Development whose mission is to support industrial R&D of mutual benefit to both countries.

The role of government in this area is to create a structure of support and a climate for the activities of the private sector. High technology cooperation is already a growing feature of Indo-US business relations. American multinational firms are setting up R&D facilities in India with increasing frequency and scope. And Indian IT firms are carrying out R&D in Silicon Valley and elsewhere in the US In the past, most technology exchanges were pure purchase or license to produce agreements. The new focus is more on joint development.

This can be accelerated if publicly funded Indian universities are permitted to follow American practices to permit more extensive collaboration with the private sector in carrying out research for commercial application. The establishment of technology transfer offices in Indian universities and permission to sign confidentiality agreements would be a good start. A structured dialogue with American universities and their technology managers to harmonize practices needs to be created.

AMERICAN MULTINATIONAL firms are setting up R&D facilities in India and Indian IT firms are carrying out R&D in Silicon Valley and elsewhere in the US. Unlike pure purchase or license to produce agreements, the new focus is more on joint development.

Expansion of high technology development and trade will depend on the continuing pace of economic reforms in India. But the foundation for rapid progress has been created through the strong bonds being built between businesses in both countries and between other non-governmental entities.

Those ties have grown partly due to recent actions of the two governments. At the November 2001 meeting between then Prime Minister Vajpayee and President Bush, the two governments agreed to discuss ways to stimulate high-technology commerce. The "High Technology Cooperation Group" (HTCG) was formed in

November 2002 to carry out this mandate, including lifting restrictions on "dual use" goods and technologies that are subject to export controls. The approval of export licenses for dual use items, as well as for commercial defence sales, has increased rapidly—in 2004 the US Commerce Department received twice as many export license applications as in 2002 and the approval rate increased to 90 percent.

This effort was elevated by the agreement of both governments on the Next Steps in Strategic Partnership (NSSP) in January, 2004. This entails extensive dialogue and engagement for cooperation in civilian space and nuclear energy technology as well as trade in high-technology dual use goods and technologies. NSSP also envisages constructive dialogue on missile defence technology. Phase I of the NSSP was concluded in September, 2004 and a second phase initiated. Phase II seeks to harmonize the export control regimes of the two countries.

CONFIDENCE IN Indian export control systems has grown as India has shown a willingness to address US concerns regarding the proliferation of sensitive technology. But there remain gaps in enforcement that could be addressed by more extensive "catch-all controls".

Considering that India was under US sanctions only five years ago as a consequence of its nuclear tests in May 1998, this new partnership is a giant leap forward. But there remain serious concerns about the pace of change and unresolved issues that require high-level attention.

Confidence in Indian export control systems has grown as India has shown a willingness to address US concerns regarding the proliferation of sensitive technology. But there remain gaps in enforcement that could be addressed by more extensive "catch-all controls" like those adopted by the principal members of multilateral regimes to prevent companies from circumventing existing laws or exploiting loopholes in regulations. Ultimately, as discussed in chapter one, the issue of Indian participation in the Nuclear Suppliers Group and the Missile Technology Control Regime must be resolved.

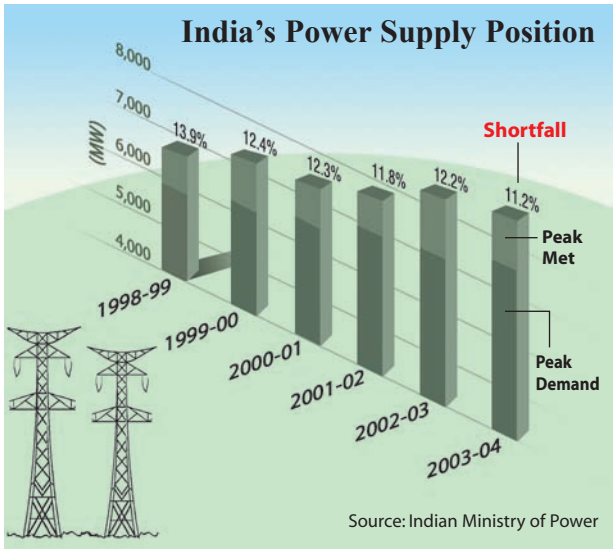
From the Indian side, there are continuing problems with US export controls, with the lack of transparency and remaining restrictions on the transfer of technology such as on advanced medical diagnostic equipment and high-speed computers. In some cases, import of complete sub-systems, such as for super-computers and space equipment, is permitted but there are restrictions on the import of spare parts. The Indian Space Research Organization was removed from the sanctions list but subsidiaries remain on the prohibitive list. In general, the export of high technology to India remains under more restrictive controls than those placed on exports to China.

There is agreement in principle on the possible sale of nuclear power equipment from the US to India, a goal reiterated by Secretary of State Condoleezza Rice during her recent visit to India. But there is no agreement on the extent of international safeguards that must be in place in India to permit such sales. In contrast, the sale of US nuclear power technology to China is less restricted and actively promoted by US government agencies.

We urge both governments to give resolution to examine these issues a high urgency. The ongoing inter-government dialogue on high-technology cooperation should be elevated to a cabinet and ministerial-level. The upcoming visit of President Bush to India should be preceded by a concerted effort to remove all remaining institutional and legal barriers to trade and cooperation in this area.

TECHNOLOGY COOPERATION FOR ENERGY SECURITY

The US and India share strategic concerns in the development of their energy sectors. Both countries seek long-term energy security and need to reduce the environmental impact of



energy production and use.

The projected sharp increase in energy use in the developing world, led by China and India, combined with rising demand by consumers of oil and gas in the developed world, is already straining world energy capacity. The International Energy Agency estimates global primary energy demands by 2020 will be 66% higher than the year 2000 level.

Developing countries may account for about 60 percent of this increase. India is presently the world's seventh largest oil consumer, importing nearly 70 percent of its oil, of which two-thirds comes from the Gulf region. Indian demand for oil is expected to be 3.2 million bbl/day by 2010. Gas consumption is also growing, with estimates of 1.6 Tcf in 2010 compared to 0.8 Tcf in 2000.

American dependence on foreign sources of oil and natural gas is also increasing at an alarming rate. Those sources are subject not only to increasing competitive pressure but also to uncertainty of supply created by political unrest and conflict.

Increased consumption of oil and gas, along with other forms of energy production, poses serious threats to the global environment, including global warming trends. There are growing concerns about the adequate supply of clean air and water.

The essential focus of future energy security for both India and the US is to reduce dependence on imported oil resources, both through more efficient utilisation of available hydrocarbon-based energy resources and through the development of alternative renewable clean energy resources. The first approach presents attractive opportunities for the near term by induction of new energy-efficient technologies that are also more eco-friendly. The second approach creates opportunities for innovative and futuristic R&D to develop solutions for the long term alternative energy resources that minimise adverse effects on the natural environment.

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ENERGY EFFICIENT TECHNOLOGIES

India has a great need for investment in technologies than can increase the efficiency of exploiting existing sources of energy. While coal is the major energy reserve for India, yet converting this for electric generation is extremely inefficient. New technology inputs, including clean coal technology being developed in the US, as well as improved management techniques, can enhance this efficiency greatly.

The near-term focus should be on the introduction of technologies to reduce emission levels from coal-based power plants and on development of cleaner energy options, including cost effective carbon sequestration technologies for capturing and storing carbon emissions. This could be done under the auspices of the Carbon Sequestration Leadership Forum (CSLF) initiative in which both India and the US are members.

Investment in the expansion of exploration and production efforts for oil and natural gas in India is considerable. But there is a need to build strategic reserves

and increase efficiency in the transport sector. Again, appropriate new technologies and upgrade of existing systems could generate significant savings on energy consumption.

Both governments should promote collaboration in these areas, including easing of barriers to foreign investment in energy production in India. In addition, they should encourage potential areas for collaborative research on energy efficiency that can pay rich dividends to industry in the long run and address mutually beneficial goals.

With a growing population and demand for increasing amenities in the cities, there is growing interest in increasing building-related energy efficiency. R&D for futuristic 'zero energy buildings' that produce more energy than they consume, by innovative application of cogeneration principles as well as new technologies of thin film photovoltaic panels, fuel cells and other similar technologies could revolutionise urban energy management.

R&D FOR futuristic 'zero energy buildings' that produce more energy than they consume, by cogeneration principles as well as new technologies of thin film photovoltaic panels, fuel cells and other similar technologies could revolutionise urban energy management.

Nanotechnology research may lead to the development of certain materials for more efficient solar cells and perhaps serve as next-generation catalysts and membranes for hydrogen-powered fuel cells. Carbon nanotubes to build new generation transmission lines with very little transmission loss could be developed.

DISTRIBUTED POWER GENERATION TECHNOLOGIES

During their recent energy crisis, Californians became aware of the potential benefits of distributed power generation. This is small-scale power generation technology that provides electric power at a site closer to customers than central station generation. A distributed power unit can be connected directly to the consumer or to a utility's transmission or distribution system.

Distributed power can potentially be generated by a variety of technologies, including turbine generators, internal combustion engine/generators, micro-turbines, photovoltaic/solar panels, wind turbines, and fuel cells. This is another promising area ready for cooperative projects of immediate commercial value between India and the US.

The need for electric power is growing steeply in India, both due to its fast economic-industrial development and to a growing population of over one billion. Existing power generation capacity, as well as the power distribution grid, have not met the increasing need for power. Distributed power generation technology, such as micro-hydroelectric or wind power, have proved quite successful in few pockets in India.

In the US, spurred by the grid power shortages in California, micro-turbine technology in the form of stand-alone units in home-size packages, first marketed by Capstone Turbine Corporation, have met the standards that require uninterrupted premium power for high-tech industry, hospitals and commercial centres.

Independent of the grid systems, micro-turbines are highly efficient, ultra-low emission, low noise systems capable of using a variety of fuel alternatives. Cogeneration techniques combine heating-cooling requirements in a packaged system to offer huge improvements in efficiency.

With the power sector reforms in India now allowing private industry participation in generation and distribution of electrical power, micro-turbines can be readily introduced in Indian cities for uninterrupted premium power to meet the growing demand of the IT

ENERGY EFFICIENT technologies of distributed generation can be suitably adapted to meet the requirements of rural India. Micro-turbine technology could be adapted to provide rural solutions by using alternative fuels such as biomass or biogas.

industry and other businesses.

Energy efficient, modular and stand-alone technologies of distributed generation can also be suitably adapted to meet the requirements of rural India where grid-supply is not available or very difficult. Micro-turbine technology could be adapted to provide rural solutions by using alternative fuels such as biomass, biogas or other organic fuels.

We recommend the creation of a government-sponsored Indo-US joint venture to apply distributed power generation technology developed in the US to rural conditions in India. A well conceived pilot project using bio-diesel could prove that this technology, combined with distributed power generation methods, could not only significantly help the rural electrification objectives of the Indian government but also provide many other long-term advantages to the environment.

More broadly, the two governments should encourage, through Export-Import Bank financing and other methods, the export of distributed power generation technology already in use in California to India.

RENEWABLE ENERGY RESOURCES

The transience of non-renewable resources and the irreversible potential damage to the environment due to excessive use of fossil fuels demands creation of alternative energy resources.

In India, many experiments and pilot projects using bio-fuels from plants such as 'Pongamia' and using biomass gasification technology have produced encouraging results with the promise of local electricity generation at Rs 2/kWhr at a consumption rate of wood/biomass of as little as 1.6 kg/kWhr. Unlike solar, wind or micro-hydro systems requiring energy storage, biomass gasifiers or bio-fuel based generation do not need storage. There is considerable interest in exploiting the 'Jatropa' wild bush grown in India for direct extraction of oil.

Scaling-up such projects for wider and commercially viable processes pose unique challenges that may demand innovative approaches such as tissue culture techniques for accelerated growth of select high yielding variety of Jatropa plants. Cooperation in innovative research and development of alternative fuels for energy generation, such as fuel oil from organic waste or agricultural products are thus potential areas of joint work. Indian experience here could add to global scientific knowledge.

Wind and solar energy systems should be another area for Indo-US collaboration. In the last twenty years in the developed world, the cost of electricity generation has been reduced by a factor of 20 and the emerging 'low-wind–speed' technology can expand land and offshore suitability by another factor of 20. Similarly, new photovoltaic technology combined with nano-technology for thin film coating can significantly improve the solar energy conversion efficiencies for buildings and structures.

While the present momentum in fuel cell development could lead to early commercial exploitation of this promising technology, futuristic areas of new generation fuel-cells and even bio-fuel cells present promising areas for long-term innovative research. Recent reports of using plain water for hydrogen generation are indicative of the enormous potential of futuristic technologies. Under the US initiative IPHE (International Partnership for Hydrogen Economy), research projects for innovative R&D could be considered for Indo-US cooperation.

COOPERATION IN OTHER TECHNOLOGIES

Our task force also examined other potential areas of Indo-US cooperation in technological innovation that offer opportunities for mutually beneficial collaboration. These include:

Waste Management: Rapid industrialization and changing modern life styles are creating increasing quantities of both organic and inorganic waste in the cities of India. This threatens to become a major environmental problem if not handled as a priority. While some environmentally conscious groups have initiated drives to recycle waste, total management of waste including converting a good part of it into energy resources has been attempted only in developed countries.

Complete waste management for a city like Delhi with a population over 15 million and thousands of industries in the vicinity can be a joint pilot project. Many of the lessons learned in places such as Alameda County, California could be used suitably for the management of all waste including household and industrial waste, plastic and paper waste, construction and demolition waste.

Ecological Risk Assessment: Scientific and reliable assessment of ecological risks as well as environmental parameters that seriously affect sustainable development are often ad-hoc. Evolving international or national standards are a major challenge today. A starting point in this area could be cooperation in building scientific and standardised capacities for ecological risk assessment. Regional and national perceptions and technology tools for assessments of parameters need to be married together in order to establish various bench-marks for future global cooperation on environmental issues. Many institutions and NGOs in the US as well as in India are already working in this field. Further collaboration in this technology area can lead to better understanding of ecological risks, while addressing these can be of universal benefit.

Information technology security: Both India and the US are democratic societies with similar concerns relative to securing data systems, the Internet and other vital information technology areas from security threats. It is well recognised that current measures for IT security leave much to be desired. Training on this subject at the Indian Institutes of Technology is very well regarded worldwide, and this area thus offers tremendous opportunities where the expertise available in India could be put to US advantage.

THE BILATERAL TASK FORCE RECOMMENDS THE FOLLOWING TO PROMOTE TECHNOLOGICAL COOPERATION BETWEEN INDIA AND THE UNITED STATES:

- Create an Indo-US Science Foundation to identify and fund collaborative research and development projects.
- Encourage publicly funded Indian universities to allow wider cooperation with the private sector on research with commercial applications, along the lines of American university standards.
- Pursue co-operation in development and production of new technologies of mutual intrest in key areas including energy efficiency, nanotechnology, and distributed power management.
- Convene a ministerial dialogue on high technology cooperation to urgently resolve remaining barriers to allow wider technology transfer to India and broadened high technology trade.
- Give priority to joint development of energy technology aimed at increasing efficiency and increased use of renewable energy sources.
- Promote the development and use of distributed power generation, particularly in rural India, based on the transfer of new technologies developed in the US.
- Encourage joint work in the areas of waste management, ecological risk assessment and information technology security.

HEALTHCARE AND HIGHER EDUCATION

Healthcare and higher education offer a powerful example of how India and the United States can cooperate to help solve each other's problems. It is an opportunity to deepen the beneficial interdependence of both countries.

Though their societies are at different levels of development, both India and the United States face a widening crisis in healthcare delivery. Similarly, while both countries take pride in higher education systems that have been the foundation of innovation and growth, those systems urgently need new infusions of investment. Healthcare and higher education offers powerful examples of how India and the United States can cooperate to help solve each other's problems. It is an opportunity to deepen the beneficial interdependence of both countries.

The American healthcare system is faced with a deadly spiral of costs. The ability to cut costs could be crucially aided by a contribution from the lower-cost Indian healthcare infrastructure.

Conversely, India faces vast public healthcare challenges, including coping with the spread of HIV/AIDS and other infectious diseases. Those challenges may only be met with considerable assistance from other countries including the United States.

When it comes to higher education, Indian institutions have made a vital contribution to US graduate programs in science, engineering and technology, sending a flow of students into American institutions. In the future, American students may see Indian educational institutions as a lower cost alternative. At the same time, India's premier institutions have shown the value of collaboration with American institutions, including in the private sector. The reform of India's higher education system will call for an even greater infusion of American capital.

Healthcare and education, so important for the future prosperity of both countries, are particularly suited to joint ventures and synergistic initiatives that can result in wider access to less expensive medical care and educational opportunities while actually creating employment on both sides. In short, strengthening each society depends upon strengthening and building the capacity of the other.

HEALTHCARE

Even before a shortage of flu vaccine in October 2004 left millions of Americans vulnerable to a disease that kills thousands of people in the United States each year, healthcare was one of the top public issues facing American politicians and policymakers. The cost of drugs

has skyrocketed, while the number of Americans lacking health insurance has risen to more than 46 million. Worries about job loss were made worse by the fact that, for the vast majority of Americans who do have health insurance, that insurance comes through their employer. To lose one's job is also to lose one's health insurance.

The spiraling cost of health insurance has added to the burden of families and corporations in the United States. Recently, General Motors announced plans to lay off 25,000 manufacturing workers. The spiraling cost of health care for these workers was cited as a major factor in this painful decision. Over the past four years, the cost of health insurance premiums alone has increased 49 per cent. The average cost of medical insurance in most of the United States is $250 per month. This is about 50 times more than Indian health insurance costs for similar coverage. Many in both countries are one catastrophic illness away from financial ruin.

In India, healthcare, though not as potent a political issue as in the United States, weighs on the minds of policymakers.

One of the gravest health threats to India is the growing HIV/AIDS epidemic. Currently, some 5 million people in India are estimated to be infected with HIV with 25 million people expected to become infected by the end of this decade. India has yet to come to grips with the full magnitude of the AIDS pandemic nor with the potentially grave impacts on the economy and on social cohesion. Infectious disease, one of the biggest health problems in India, is exacerbated by environmental pollution, poor levels of sanitation and insufficient access to clean water.

While India's overall expenditure on health as a percentage of GDP is comparable to other developing countries, per-capita spending is extremely low. Eighty-two percent of healthcare spending is in the private sector, with only 18 percent coming from public funding. While private clinics in India provide world-class medical care to wealthier Indians and an increasing number of "medical tourists" from abroad, public healthcare predominantly destined for the poor—35 percent of India's population—is insufficient.

In the area of healthcare delivery and insurance, India is adopting changes that reflect the American system, such as opening the doors to private medical practice and privatization of health insurance. While India needs to establish a market economy in healthcare and a mechanism of healthcare insurance to serve its more than one billion people, the United States faces the challenge of ensuring broad coverage and addressing disparities in its own system.

Despite these problems, India has considerable medical assets that offer the United States potentially significant assistance in lowering healthcare costs and meeting gaps in the healthcare delivery system.

India is beginning to provide cost-savings across a range of areas, including as a provider of low-cost surgical interventions, of medical transcription, radiology and other "back-office" functions to the US medical industry, and as a lower-cost producer of both generic and brand-name drugs.

India's information technology expertise is already contributing to reducing the cost of US healthcare by improving the management of conditions and speeding access to medical information. The process management and consulting services could reduce costs up to 30 percent and actually raise revenues for US-based healthcare service providers, medical billing compa-

ONE OF THE GRAVEST health threats to India is the growing HIV/AIDS epidemic. Currently, 5m people in India are estimated to be HIV infected and 25m expected to become infected by the end of this decade. India has yet to come to grips with the full magnitude of AIDS.

Comparative Treatment Costs

	INDIA	US
Open Heart surgery	$4,500	$18,000
Cranio-Facial surgery	$4,300	$13,000
Neuro surgery w/ Hypothermia	$6,500	$21,000
Complex spine surgery	$4,300	$13,000
Simple spine surgery	$2,100	$6,500
Brain Tumour, Biopsy	$1,000	$4,300
Brain Tumour, Surgery	$4,300	$10,000
Hip Replacement	$4,300	$13,000
Root Canal	$100	$600
Porcelain Metal Bridge	$300	$1,800

Typical comparative costs Source: Indiadirectory.com

nies, hospitals, payer organizations and others.

The higher quality parts of the Indian medical system provide medical care that is comparable to that available in developed countries. That system has a considerable and rapidly growing capability to handle both domestic and international demand for medical services in the areas of cardiology and cardiac surgery, joint replacement, minimally invasive surgery and therapeutic endoscopy, oncology and pathology. As medical costs skyrocket in the developed world, India can administer treatments such as those for dental problems or even major procedures, such as bypass surgery or angioplasty, at a fraction of the cost. A cardiac surgery in India can cost one-tenth compared to the cost in the United States.

News stories highlighted the case of American Howard Staab who, with no health insurance and facing heart surgery estimated to cost upwards of $200,000 "outsourced" himself and his procedure to India's Escorts Heart Institute & Research Centre where he was able to get the surgery he needed for only $10,000—including roundtrip airfare from the United States and a side-trip to visit the Taj Mahal.

Tom Raudaschl, an Austrian who lives in Canada and earns his living as a mountain guide, suffered from osteoarthritis in his hip. Raudaschl decided to undergo "hip resurfacing," a relatively new procedure that involves scraping away of damaged bone and replacing it with chrome alloy. He learned that he would have to wait as long as three years if he wanted to have the operation done under Canada's national health plan, a delay that would have cost him his job, Raudaschl said. Raudaschl could have had the procedure done in the United States, but it would have cost him $21,000. Instead, Raudaschl flew from Calgary to Chennai, on India's southern coast, where a surgeon at Apollo Hospital performed the operation for $5,000, including all hospital costs.

Other Indian centers of medical excellence such as Wockhardt Hospitals, Fortis Healthcare, Tata Memorial Cancer Hospital, Leelawati Hospital and Manipal Hospital provide state-of-the-art care in these and other areas. These centers of medical excellence are a valuable resource for the poor in India as well. All are required to—and do—look after some financially disadvantaged patients. If this capacity is expanded, India could act as a major back up for healthcare services for a large number of developed countries, including the United States.

BOTH COUNTRIES have their own advantage in the science of medicine. While the US has some of the best research teams in the world, Indians are clinically outstanding, with doctors having the opportunity to see a great variety of cases due to the country's large population.

There is also a growing interest among Americans in the field of complimentary and alternative medicine. Visits to alternative practitioners have, in some cases, begun to outnumber visits to the primary care physicians in the United States, despite the fact that such therapies are often paid for out-of-pocket. In India, although the majority of medicine is not traditional, the system is unique in that it integrates traditional medicine as a medical specialty to deliver a more holistic approach toward healthcare.

According to the Confederation of Indian Industry, with yoga, meditation, ayurveda, homeopathy, and other systems of alternative care, India offers a unique basket

of services that is difficult for other countries to match by other countries. There is an increasing interest in using alternative medicine at various centers in India, especially in Kerala. A joint venture between the two countries could examine the possibilities of integrating traditional and alternative approaches to healthcare.

Both countries have their own comparative advantage in the science of medicine. While the US has some of the best research teams in the world, Indians are clinically outstanding, with doctors having the opportunity to see a great variety of cases at a higher frequency due to the country's large population base of more than one billion.

Both India and the United States have much to gain from increasing the training of medical personnel in India. In rural areas of the United States, for example, where there is a shortage of healthcare providers, Indian-trained doctors have provided badly needed care for some years now. Similarly, nurses trained in India have brought relief to the nursing shortage around the country.

SPECIFIC AREAS of potential collaborative research include vaccine development, biotechnology, clinical trials for microbicides and prophylaxis and exploring private-public partnerships in healthcare, tobacco-related illness and disease-inducing pollution.

The United States can assist India in establishing more accredited public health schools to train additional doctors, nurses and medical personnel. In addition to the approximately 300,000 nurses India will train during the coming decade, there is a need for pharmacists, physiotherapists, radiation therapists, medical diagnostic radiographers and sonographers to meet both India's and a portion of the United States' healthcare needs during the coming years. The United States and other western countries would benefit if training programs for nurses and other paramedics were uniform and met standards required abroad. Employment prospects for these professionals would also be enhanced significantly.

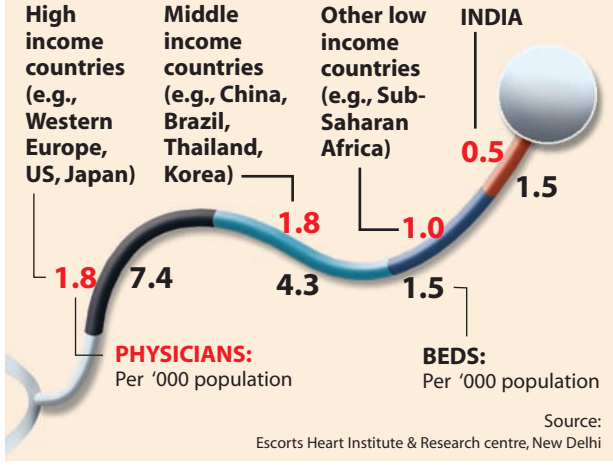
Assistance to India in coping with the problem of pandemic diseases such as HIV/AIDS is also urgent. Clearly, public health deficits in India make tackling this problem even more difficult. Enormous political will and the dedication of real resources will be needed to address this threat through enhanced public education, improved accessibility to anti-retroviral therapies, and the lifting of obstacles posed by pharmaceutical patents, licensing and differential pricing.

Increased scientific exchange could help achieve breakthroughs in the treatment of such diseases. The University of California, San Francisco's Institute of Global Health's engagement in scientific and medical exchange and cooperation with India is a model that could be replicated across the United States.

Specific areas of potential collaborative research include vaccine development, biotechnology, clinical trials for microbicides and prophylaxis and exploring private-public partnerships in healthcare provision, tobacco-related illness and disease-inducing pollution.

Partnerships with India could bring down one of the largest contributors to increased health costs in the United States: the cost of drugs. India is able to produce pharmaceutical chemicals much less expensively than they can be produced in the United States. Indeed, India's potential in the pharmaceutical area is underlined by the FDA's opening its first overseas office in

Primary indicators of Healthcare in India



Source:
Escorts Heart Institute & Research centre, New Delhi

India. The passage of legislation to ensure that production of pharmaceuticals in India is compliant with international standards for the protection of intellectual property rights should accelerate cooperation in this area. India's capacity in pharmaceuticals is expected to outstrip the United States' in the near future.

We believe that combining the distinct advantages of both countries, will provide distinct benefits in meeting the considerable challenges both face in providing effective healthcare to their people.

THE BILATERAL TASK FORCE RECOMMENDS THE FOLLOWING IN THE AREA OF HEALTHCARE:

- Encourage India's role as low-cost producer of generic drugs and developer of cost-effective new drugs, including for export to the US.
- Support the conduct of world-class clinical trials in India, including clinical research in Indian hospitals.
- Use India to lower American healthcare costs through information technology, and the outsourcing of medical services.
- Create common standards for medical training and assist the expansion of Indian medical education.
- Provide additional research and treatment support to combat the growth of HIV-AIDS in India.
- Bring medical and scientific investigative tools from the United States to assess the potential of traditional medicines and medical practices in India.

EDUCATION

Higher education is among the most important, and least appreciated, foundations of the budding partnership between India and the United States. Since US immigration laws were liberalized in the 1960s, hundreds of thousands of students from India have come to the United States to pursue advanced degrees. Many of them stayed, contributing to one of the most highly educated, most prosperous and fastest growing immigrant groups in the United States. Many returned to India to pursue successful careers at home. It is difficult to find well-educated, urban Indians in India who do not have a brother, daughter, uncle or cousin who studied or who is studying in the United States. The experience of living and learning in the United States as a young man or woman is a formative one shared by many of India's most successful sons and daughters.

FOR THE 3rd year India is the leading place of origin for international students carrying out undergraduate and graduate studies in the US. Nearly 80,000 Indian students were in the US in 2003-04, a 7 percent increase from the previous year.

According to the most recent data assembled by the Institute of International Education, for the third year India is the leading place of origin for international students carrying out undergraduate and graduate studies in the US. Nearly 80,000 Indian students were in the US in 2003-04, a seven percent increase from the previous year.

International students are a considerable source of financial support to American higher education. Overall, according to the IIE, they brought over $13 billion into the US economy, spent on tuition, living expenses and related costs. Nearly 75 percent of all international students reported that their primary source of funding comes from sources outside the United States.

California is the leading host state with some 77,000 foreign students out of a nationwide total of about 572,000. The University of Southern California hosts

the largest single number of international students.

In India, the highly competitive and world-famous Indian Institutes of Technology were set up with American guidance and support. It would be difficult to measure the exact extent to which the IIT campuses have contributed to India's global leadership in the area of information technology and to the disproportionate role Indians have played in the American tech revolution, but many agree that without the IITs, there would have been no Indian dominance in information technology. Indeed, the IIT reputation of excellence extends into the boardrooms of US-based multinational corporations—major US companies boast not a few IIT graduates as CEOs.

Throughout the Cold War, a host of private foundations, such as the Ford and the Rockefeller Foundations, and government-supported enterprises, such as the Fulbright grants, helped nurture such educational partnerships.

ONE OF THE great challenges for India in the area of higher education is to increase the quality of its higher education opportunities so that students from the US and elsewhere begin to view India as a quality higher education destination.

Unfortunately, that support has fallen off dramatically. And more recently, the new post-9/11 security environment has resulted in new restrictions on student visas and visas for visiting academics, research scientists and highly skilled workers.

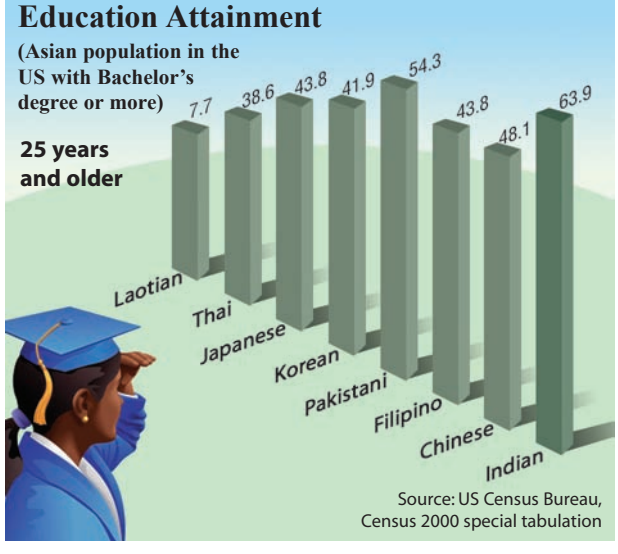
Overall, international student enrollment in the US declined in 2003-04 by 2.4 percent, the first absolute decline since 1971-72. The decline was even greater on the undergraduate level, where enrollment from India, for example, dropped by 9 percent. Indian enrollment as a whole did increase but at a significantly slower rate than in previous years.

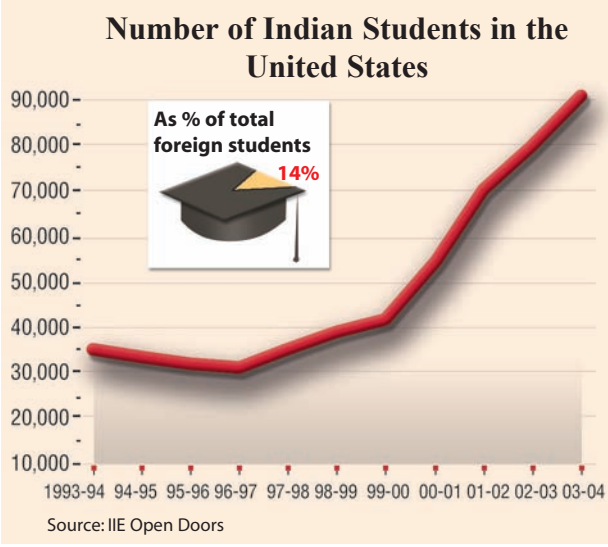
The US government has responded recently to this trend, announcing changes to make it easier for foreign graduate science students to extend their visa eligibility. But there are still troubling delays in processing visa applications, contributing to foreign students going in increasing numbers to other countries. It would be a real tragedy if the United States were to relinquish its status as the destination of choice for bright young Indians seeking higher education opportunities abroad.

Indians currently spend between $900 million and $1.2 billion on education abroad versus the $1.9 billion spent by the central Indian government on education in India. Clearly, Indians are willing to spend money on quality education.

One of the great challenges for India in the area of higher education is to increase the quality of its higher education opportunities so that not only do more Indians who might otherwise have gone abroad choose to pursue their higher education in India but, more importantly to India's global aspirations, so that students from the United States and elsewhere begin to view India as a quality higher education destination.

With a private university education in the United States costing $40,000 per year or a total of $160,000 for four years currently, the opportunity for India is obvious. Just as India has been able to market itself as a place where a patient can get the same quality by-pass operation done for $10,000 that would cost $200,000 in the United States, so should India aim to capture the student who would be tempted by a quality higher edu-





cation at $3,000 per year versus $40,000 per year.

India has the capability to become a knowledge producer rather than simply a supplier of talent. India should aspire to become an education hub for South and Southeast Asia.

While Indian residential education and elite institutions of higher education have the potential to attract foreign students, this capacity has hardly begun to be developed.

In order to achieve this, India must reform its higher education system. At present, quality between institutions varies so widely it is difficult for graduate institutions abroad or prospective employers to assess the true value of an Indian degree at all but the best -known institutions. India also must expand its capacity since it has many students in India to educate as well, most of who cannot afford to study abroad. Finally, India must invest in its primary education system where serious deficiencies exist.

American universities and research institutions could aid that process through joint ventures and collaborative efforts with Indian academic institutions.

But for that to happen, India should liberalize its educational regime and allow foreign institutions to set up operations within India. It would reap the benefits of foreign investments, retention of good talent within the country and the enhancement of quality that competition will generate.

Indian educational institutions need to provide facilities and incentives that will encourage a larger flow of educationists and researchers, as well as graduate students, to India. This can be aided by greater investment in R&D, and by further developing research programs that can be executed through Indian research centers. This will call for refurbishing these research centers to bring them up to an international level. The United States can take an active role in helping capacity building just like it did some decades ago with agricultural research institutes.

Educational and cultural exchanges are also important mechanisms for cultural understanding. These exchanges should be encouraged at the higher education level but also at the secondary school level. When high-school students travel abroad, their awareness of the world and its possibilities is transformed. Easing restrictions on the processing of visa applications would aid such exchanges as well. In the post-9/11 environment, security concerns have resulted in backlogs of visa applications, delays and unexplained denials of visas for travel to the United States on the part of tourists, family members, students, scientists, visiting scholars and artists. Faced with these difficulties, and often with needless humiliation as well, more and more Indians who venture abroad are heading to Australia, New Zealand, Europe, the Gulf and other parts of Asia for holidays, higher education, professional opportunities and artistic performances.

INDIA SHOULD liberalize its educational regime and allow foreign institutions to set up operations. It would reap the benefits of foreign investments, retention of good talent within the country and the enhancement of quality through competition.

Business and educational opportunities and family ties remain strong incentives for travel to the United States from India but there is no doubt that current

policies risk inflicting serious damage to the longstanding perception by Indians of the United States as the opportunity destination.

THE BILATERAL TASK FORCE RECOMMENDS THE FOLLOWING TO IMPROVE COOPERATION ON HIGHER EDUCATIONAL OPPORTUNITIES BETWEEN INDIA AND THE UNITED STATES.

- Remove Indian barriers to foreign investment and ownership in higher education.
- Promote mutual accreditation between Indian and US educational systems.
- Encourage US investment in enhancing capabilities of Indian higher education in areas such as public health, urban studies and American studies.
- Seek Indian assistance in strengthening Indian studies programs in the United States.
- Relax Indian visa regimes for foreign students and scholars.
- Strongly encourage removing visa barriers to the flow of Indian students to the US raised by post 9/11 security measures.
- Widen educational exchanges including at secondary school level.

INDIAN EDUCATIONAL institutions need to provide facilities and incentives that will encourage a larger flow of educationists and researchers to India. This can be aided by greater investment in R&D, and by evolving research programs.

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DIASPORA, MEDIA AND CULTURE

Ups and downs are natural as governments redefine their national interests and their actions coincide or collide. What permits two states to endure those stresses are underlying shared values, woven into the fabric of their relationship by direct relations between their peoples.

Relations between governments have an inherent fragility. There are natural ups and downs as governments redefine their national interests and their actions coincide or collide. What permits two states to endure those stresses are underlying shared values, woven into the fabric of their relationship by direct relations between their peoples. Those ties shape mutual perceptions—creating friendships that endure political tensions.

In the modern era, Indians and Americans have shared fundamental values, not least their belief in democratic governance and in the rule of law. But that clarity of common purpose has been clouded by largely negative perceptions of each other. Americans saw India as a distant, poverty-stricken land, their view shaped by exotic imagery from the days of the British Raj. Indian images of the United States were often equally clichéd—of a superpower prone to violence, arrogance and the excesses of wealth.

The past decade has witnessed a breakthrough in perception that may be more significant in its long-term impact that the improvement in relations between governments. American awareness of India has dramatically increased and the American popular perception of India has undergone a radical transformation. Driven by the IT revolution, Americans now see India as a dynamic, innovative society, even as an economic competitor.

At the same time American cultural perceptions of India are dramatically evolving in a positive direction, Indian perceptions of America are also shifting. A young, increasingly globalized population has embraced American popular consumer culture. In the process, they are making their own contributions to the transformation of that global pop culture.

Opinion polls show a dramatic shift in Indian views of the United States, making India one of the few countries in the world where generally positive perceptions of the US prevail. According to a poll by the BBC following the US presidential election in 2004, India is one of the few nations in the world whose population thought the re-election of President George W. Bush was a positive outcome (61 percent). Polls also show that the majority of Indians view the United States influence in the world as positive.

To be sure, this does not mean a complete coincidence of views. An even stronger majority of Indians opposed sending troops to Iraq. Much of the positive view of George W. Bush in India can be attributed to fears that, had Senator John Kerry been elected, he would have

both clamped down on outsourcing and reinstated nuclear sanctions against India. In Indian policy circles, the Bush administration was also felt to be a known entity, and by default more desirable than the uncertainty of a new Democratic administration.

It is inarguable, however, that a massive shift in perception is underway, driven first of all by the creation of new cultural and popular bridges between the two societies. This must now be given a much firmer foundation and an even broader pathway created between the peoples of India and the United States. That begins, as it should, with the Indian diaspora in the United States, the transmission belt for change.

THE ROLE OF THE INDIAN DIASPORA IN THE UNITED STATES

No factor has contributed more to the shift in perception than the phenomenal growth of a highly educated and disproportionately affluent Indian American community. Numbering in the mere tens of thousands before US immigration laws were liberalized in the 1960s, Indian Americans have doubled their numbers during the past decade alone to nearly 2 million and are expected to do so again during the coming decade, making them one of the fastest growing immigrant groups in the United States. With a per capita income estimated at $60,093 (versus $38,885 for the general population) and with 58 percent holding a bachelor's degree or higher (versus 20 percent of the population as a whole), Indian Americans are, as a group, better off and better educated than the average American. The fact that immigration from India was for many years, even when stranglehold quotas were lifted in the 1960s, limited primarily to highly skilled workers has contributed to these impressive numbers.

Successful Indian high-tech entrepreneurs in Silicon Valley created companies that gave employment to thousands of highly skilled American workers and achieved stunning breakthroughs in efficiencies.

Indians in the United States working in the technology sector were—and were perceived to be—creators of innovation, wealth and employment. "If there is a smell that defines Silicon Valley," wrote tech journalist Michael Lewis, "it is the smell of curry." Some of these "Silicon Indians" took their experience and the skills they had honed in California back to India where, working with what is certainly the largest corps of highly skilled technical workers in the world, they turned Bangalore and Hyderabad, notably, into Indian Silicon Valleys.

As the Indian immigrant population has expanded to include family members and other categories, it has become more economically and educationally diverse. Many thousands of immigrants from India to the United States, as from other countries around the world, do not speak English fluently, do not possess a college degree and live below the official poverty line. It is important to remember that alongside the successful doctors, engineers and high-tech entrepreneurs, there are also taxi drivers, newsstand vendors and chip fabricators.

In a country that remains bedeviled by racism, Indian Americans of all economic and educational strata have to confront their visible difference from the Anglo-American dominant culture. This has become especially true in the wake of the terrorist attacks on September 11, 2001, when many Indian Americans and other immigrants from South Asia found themselves objects of suspicion or even outright hatred on the part of some Americans who find it difficult to distinguish between the diverse peoples of the non-European

INDIAN ENTREPRENEURS in Silicon Valley created companies that employed thousands of skilled Americans and achieved stunning breakthroughs in efficiencies. Indians in the US were perceived to be creators of innovation, wealth and employment.

world. Many Indian Americans feel they are pulled out of line for extra security screening at US airports. For example, more often than white Americans for no other reason they can fathom than their exotic looks or name.

The complex and varied experiences of success and discrimination, of ambition and frustration in their American lives have led more Indian Americans than ever to get involved in the political process. During the 2004 election year, various Indian-American political action and organizing groups plunged into the political fray. From municipal councils, to congressional races, to key positions in government, Indian Americans—such as San Francisco's new District Attorney Kamala Devi Harris are increasingly participating in the American political process. Once reliably counted as Democrats, and still heavily Democratic, some Indian Americans are shifting their political allegiance toward a Republican Party that has assiduously courted them on the basis of conservative values, anti-tax policies and support for partnership with India. The IARC (Indian American Republican Committee) backed an entirely different set of candidates during the recent election than did South Asians for Kerry.

At just under 2 million people, of whom perhaps 60 percent are US citizens eligible to vote and of these only 57.1 percent are registered voters, the number of Indian-American voters remains minuscule. However, in bitterly divided presidential contests where a state's basket of all-important electoral votes can be determined by a few hundred votes, every vote does indeed count and Indian Americans are leveraging this to increase their political influence. When one considers, for example, that the Indian American population of Florida is 72,253 and that George W. Bush was given victory in Florida by a margin of only 537 votes in 2000, which in turn won him that year's presidential election, it is easy to see how Indian Americans can make sure their votes are counted.

Along with an increased influence in domestic American politics, the Indian American community has organized itself into powerful political action groups with the express goal of influencing United States' policy toward India. USINPAC (United States India Political Action Committee), only founded in the fall of 2002, already counts more than 27,000 members. IALIPAC (Indian American Leadership Initiative Political Action Committee) is another influential group, along with the IALI (Indian American Leadership Initiative) and the IACFPA (Indian American Center for Political Awareness).

The now decade old Congressional Caucus on India and Indian Americans has the express purpose to "push the Indian-American community's agenda on the Hill." A new caucus on India was formed in the US Senate in 2004, founded by Senator John Cornyn (Freshman Republican from Texas), called simply "Friends of India." The efforts of Indian-American lobbying groups and these caucuses have resulted in an increased and measurable influence over US foreign policy toward India with regard to a host of issues including immigration, bilateral trade, the lifting of economic sanctions following India's 1998 nuclear tests, terrorism and the protection of Indian Americans and Indian visitors to the United States from harassment and hate crimes following the September 11th attacks.

On the Indian side, there is a high awareness of the tremendous asset represented by the Indian global diaspora, estimated at some 20 million people. Members of the Indian diaspora send back annual remittances to India of $18 billion, with $4.5 billion coming from the

THE COMPLEX and varied experiences of success and discrimination, of ambition and frustration in their lives have led more Indian Americans than ever to get involved in politics. During the last election Indian-American groups plunged into the political fray.

United States alone. The creation of a new ministerial-level post for NRI (Non-Resident Indians) Affairs underlines the importance India places on its diaspora. Among the perks in the works for India's overseas sons and daughters are dual-citizenship, internet-based remittance products, special courts, and a "single-window" facility for investment. India now hosts an annual Pravasi Bharatiya Divas dedicated to strengthening the bonds of overseas Indians with their motherland. New NRI Minister Jagdish Tytler has promised to unveil a 23-point program on NRI affairs aimed at inciting new levels of engagement by the Indian diaspora in India's future. The deep-pocketed, politically influential American portion of that diaspora is among the most assiduously courted.

THERE ARE increasing signs of what only a few years ago would have been unimaginable—shift from a "brain drain" model to one of "brain gain." Outsourcing and the growth of India's own IT sector are creating opportunities in India which induce Indians to return.

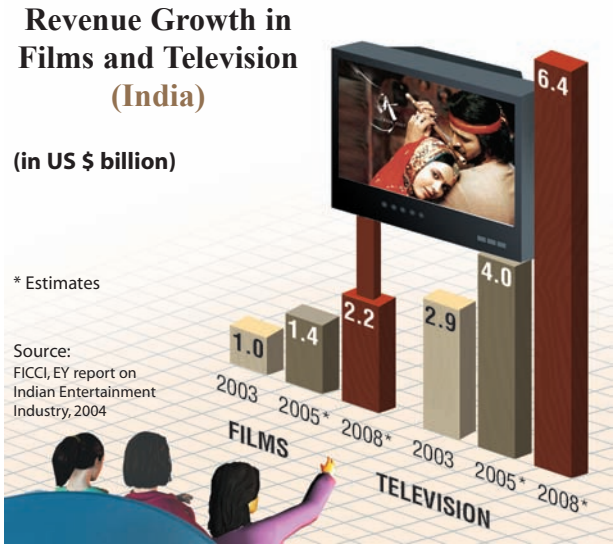
There are increasing signs of what only a few years ago would have been an unimaginable turn-about in the India-US knowledge relationship: a shift from a "brain drain" model to one of "brain gain." Outsourcing and the growth of India's own information technology sector have created many opportunities in India for highly skilled young Indians. Increasingly, Indian youth who might have formerly sought employment opportunities in the United States are choosing to stay in India. At the same time, more and more Indians who emigrated to the United States for higher education or good jobs are choosing to return to India where they now feel confidence in India's new ability to provide both a high standard of living and the comforts of home and proximity to family. These overseas returnees have transformed the definition of "NRI" from "Non-Resident Indian" to "Newly Returned Indian."

Indeed, with India's economic and technological ascendance so much in the news, the latest trend is for young Americans and Europeans to seek job opportunities in India, as witnessed by the dramatic rise in foreign applications to Infosys's much sought-after internship program.

CULTURAL PERCEPTIONS

There is no doubt that cultural perceptions engender strategic effects. Perceptions on both sides of the India-US bilateral relationship are changing rapidly. Indian Americans are not only financially successful and politically astute, they are culturally engaged. Increasingly visible in American mainstream culture, Indian Americans are changing the very definition of "American" to include a distinctly Indian flavour. A Newsweek magazine feature claimed in 2004 that South Asians in the United States "are changing the way we eat, dress, work and play." The ubiquitous presence of *chai* on coffee-house menus, the emergence of the *Bhangra* workout craze in California and the smiling face on daily television shows of Indian media personalities such as CNN's Dr. Sanjay Gupta have served to de-exoticize a country that for too long remained more Far Pavilions than Fast Company in the American imagination.

At this beginning stage of the twenty-first century, Indian film, literature, music, cuisine and live entertainment are becoming vibrantly accessible for the first time to a wide American audience. The American news media—print, broadcast and Internet—is covering India as never before. In radical contrast to the stories and images of the past, India is now more often portrayed as a technological leader and an emerging world economic and political power. It is possible to read a major American daily newspaper and find a story on India or the achievements of somebody from India in every section from science, to busi-



ness, to the arts, to current affairs. This is an extraordinary change that is bound to have a profound effect on how Americans see India and Indians.

Popular, "realistic" movies by diaspora directors such as *Monsoon Wedding* and *Bride and Prejudice*, portraying Indians and diaspora Indians fully engaged in the contradictions of contemporary 21st-century life, are powerful forces for helping Americans to see Indians and Indian Americans as more like than unlike themselves. Even mainstream Hollywood movies, in the hands of Indian-born film directors, include "winks" to Indian culture: Mira Nair managed to make India a veritable subplot in her recent adaptation of *Vanity Fair* while M. Night Shyamalan included "news" footage from India of the aliens descended to snack on earthly humans in his film *Signs*.

West Bengal-born Jhumpa Lahiri's short-story collection *The Interpreter of Maladies* won the Pulitzer Prize for "distinguished fiction by an American author, preferably dealing with American life," while her latest novel *The Namesake*, about the experience of an immigrant Bengali family in America was a national bestseller. In India, Bollywood blockbuster films such as the recent *Kal Ho Na Ho* showcase romances between diaspora Indians in New York and Indians in India, providing Indians with scenes of their cousins' lives abroad and the reassurance that no matter how far away they may settle, they remain true Indians at heart.

Just as American culture in the United States under the influence of a growing Indian American population is being redefined, within India, Indian culture is also having a strong modifying effect on American cultural exports. Indians are not simply passive consumers of unadulterated American cultural production.

Yet, while Indians often express anxiety over "negative" American images and perceptions of their country, Americans too rarely concern themselves with how India perceives the United States. This may be about to change. As India's economic and cultural might grows, as the stake of US-based business and entertainment industries in India increases, and as the Indian-American population continues to grow in numbers and influence, Americans may begin to care about Indian perceptions of the United States.

JUST AS AMERICAN culture in the US under the influence of a growing Indian American population is being redefined, within India, its culture is also having a strong impact on American cultural exports. Indians are no longer passive consumers of American cultural production.

BUSINESS OPPORTUNITIES IN MEDIA AND ENTERTAINMENT

Behind the scenes, the potential of Indian American partnerships in diverse areas of cultural production, including television, software, computer animation, book printing and film post-production is enormous. The potential of each country's markets for the others' entertainment and media has hardly been tapped.

Asia is emerging as an important global economic engine, poised to capture as much as 70 percent of global entertainment revenues within the next ten years. Indian film director Shekhar Kapur has suggested that India alone is set to garner at least 50 percent of that share, or 35 percent of total global entertainment revenues.

India's entertainment industry is outstripping other

sectors, with growth in 2001 of 30% and of at least 15% in subsequent years. In dollar terms, revenues increased from $3.3 billion in 2002 to an estimated $4.25 billion in 2003. Projections are for the industry to command around $9.4 billion in revenues by 2008.

These kinds of astounding forecasts have not been lost on US-based entertainment businesses, from MTV—one of the earliest to penetrate the Indian market more than a decade ago—to the Disney to latest arrival Marvel Comics whose Spiderman character, reincarnated for the Indian market as Pavitr Prabhakar, is taking the subcontinent by storm.

On the US side, much of the business in film, video, animation, music and television is based in California, making the key area of media and entertainment one more sector where the bilateral relationship is driven from California rather than from Washington, D.C.

THIS IS A CRUCIAL moment to take steps to deepen and nurture positive cultural perceptions in both India and the United States, as well as to improve prospects for cross-pollination and growth in art, media and entertainment-related business.

We believe this is a crucial moment to take steps to deepen and nurture positive cultural perceptions in both India and the United States, as well as to improve prospects for cross-pollination and growth in media and entertainment-related business.

THE BILATERAL TASK FORCE RECOMMENDS THE FOLLOWING IN THE AREAS OF DIASPORA, MEDIA AND CULTURE:

- Facilitate access to the United States for Indian performers, filmmakers, authors and other cultural and entertainment workers.
- Ease visa approvals for Indian students, visitors, scholars and family members of US citizens and permanent residents.
- Encourage venture capital funding to Indian ventures in media and entertainment.
- Draft a joint agreement on film, video and television co-production.
- Combat copyright theft.
- Declare 2006 the "Year of India" in the United States and the "Year of the United States" in India.
- Establish a broad organization in the US to promote cultural understanding on the model of the Japan Society.

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CONCLUSION

A decade and a half after the end of the Cold War, India and the United States are finally warming up to each other. The relationship is at last looking like realizing its full potential.

In the early 1990s, India began to liberalize its economy and was seen as a 'big emerging market'. The 1998 Pokhran nuclear tests established India's credentials as an emerging geo-political power. Strides made in the information technology (IT) domain, together with other developments, saw India increase its leverage as a software powerhouse. Successive US administrations began to realize India's economic potential and to see India as a partner in maintaining regional peace and stability and maritime security. The two countries have since taken remarkably little time in embarking on a 'strategic partnership' that is driven by shared mutual interests being consolidated further almost on a daily basis.

It was in the light of these developments that the ORF-PCIP joint task force on Indo-US Relations was constituted to examine the current state of the relationship, specially with the West side of the US where many commonalties exist. It was agreed to identify new areas of convergence and recommend ways and means necessary to cement the relationship further for mutual benefit in the years ahead. Even as the two countries are exploring avenues to cooperate in the fields of space and dual-use technologies, military-to-military cooperation is now being extended to joint patrolling of sea-lanes of communication in the Indian Ocean and talks have begun on the US Proliferation Security Initiative (PSI). The Task Force has recommended the exploitation of new commercial opportunities in both the countries by ensuring level playing fields for the entry of capital, goods and operations and the establishment of common standards for regulatory compliance. In the areas of diaspora, media and culture, the Task Force has recommended that while India needs to open up its market for entertainment and improve intellectual property rights protection, the US should provide venture capital funding, facilitate the entry of Indian students, scientists, professionals and artists, and work with the Indian-American community to reduce discrimination.

In science and technology, the two countries should enhance cooperation through a graduated approach, particularly in energy and environment. Government policies that hinder technology exchanges should be reviewed and activities of the Indo-US Science Forum

should be strengthened. Joint long-term research in areas of mutual strength will yield rich dividends. Education in the two countries would benefit immensely from relaxation of ownership norms in FDI in India and the easing of visa restrictions for Indian students in the US healthcare is a sector in which mutual dependencies can be beneficially exploited. India can contribute significantly to lowering the costs of healthcare in the US through trained manpower and traditional Indian medicines and US technological strengths can benefit India's rural sector that is in most need of low-cost healthcare. Cultural exchanges need to be enhanced further and both the countries would do well to designate 2006 as the "Year of the United States" in India and as the "Year of India" in the US.

Finally, while government-to-government interaction plays an important part in the relationship between two countries, people-to-people relations can often be more important drivers. This is being proved on a regular basis in the Indo-US context. A DNA bridge now links India with the US. It is a mutually beneficial two-way street that is likely to be slowly widened into a four-lane or even an eight-lane super expressway. Future relations between India and the US will be driven inexorably by trade and commerce and people-to-people contacts. The two governments should take this reality into account and work towards cooperation despite the strategic differences that may still remain.

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