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Prime Minister Dr. Manmohan Singh with U.S. President George W. Bush at the Oval Office, in Washington DC, on September 25.

## Prime Minister Manmohan Singh visits United States

■ PM pitches for UN reforms and backs global fight against terror in his address at UNGA.

■ Indian company Essar Steel Holdings Lines up investments of more than \$4 billion in North America.

■ PepsiCo announces an investment of \$500 million in India over three years to triple revenues by 2014.

# Prime Minister Manmohan Singh visits US

**P** rime Minister Dr. Manmohan Singh arrived in the United States on September 23 for talks with U.S. President George W. Bush on a host of bilateral issues including the India-U.S. Civil Nuclear Initiative. During the visit, he met with President Bush in Washington, D.C. on September 25.

The Indian delegation included the Deputy Chairman of the Planning Commission, Dr. Montek Singh Ahluwalia, National Security Advisor M. K. Narayanan, Indian Ambassador to the U.S. Ronen Sen, the Prime Minister's Special Envoy Shyam Saran and Foreign Secretary Shivshankar Menon. The U.S. side included Deputy Secretary of State John Negroponte and U.S. Ambassador to India David Mulford.

The two leaders discussed the status of the India-U.S. Civil Nuclear Initiative and a range of issues covering the India-U.S. strategic partnership, at the Oval Office in the White House.

After the talks, Dr. Singh said, "The last four-and-a-half years that I have been Prime Minister, there has been a massive transformation of India-U.S. relations." The U.S. President had "played a most important role in making all this happen", he said.

Appreciating President Bush for his efforts to rebuild India-U.S. relations, Prime Minister Singh said: "When history is written I think it will be recorded that President George W. Bush made an historic goal in bringing our two democracies closer to each other."

"The United States is India's largest trading partner. The United States is also the largest investor in our country. And at President Bush's initiative, we set up a two-country forum, which has come forward with many innovative ideas which bring the business communities of our two countries closer to each other."



Prime Minister Dr. Manmohan Singh with U.S. President George W. Bush at the Oval Office, in Washington D.C., on September 25.

"In the areas of science and technology, in the areas relating to environment management, in the areas relating to climate change, in areas relating to health, in areas relating to knowledge initiatives in agriculture — all of these initiatives have emerged as a result of the historic meeting that I had with President Bush on July 18, 2005. These are the reasons we have now a strategic partnership with the United States. And all that has happened has happened because of the strong personal commitment of the President."

During the meeting, Dr. Singh also briefed President Bush on a range of issues, including the situation in India's neighborhood.

Emerging from the talks, President Bush said that he was working hard to pass the India-U.S. Civil Nuclear Initiative as quickly as possible. President Bush said that he and Prime Minister Singh had worked hard to "change the relationship between our countries. India is a great country, with an incredibly bright future. And it is in the interests of the United States to have a good, strong strategic relationship with India. And we have worked hard to achieve that."

He said that the India-U.S. Civil Nuclear Initiative has "taken a lot of work on both our parts, a lot of courage on your part. And of course,

we want the agreement to satisfy you and we want to get it out of our Congress. And so we're working hard to get it passed as quickly as possible".

He further said that they talked about trade. "We talked about the environment and how technologies will make it such that we can grow our economies and be good stewards of the environment."

President Bush also had words of praise for

India. "There's a vibrancy and energy, and there's a entrepreneurial spirit that's very strong. And I congratulate you and your government for enhancing that entrepreneurial spirit."

President Bush also thanked Dr. Singh for his advice on a range of matters. "I appreciated very much your briefing on the neighborhood in which you live. It's very informative and it helps me make decisions and helps me formulate policy. All in all, ours is a very strong relationship, at a state level and at a personal level. And I appreciate you coming."

Later, in New York, the Prime Minister met with the U.S. Republican Vice Presidential candidate, Sarah Palin, World Bank President Robert Zoellick and top American CEOs.

At the United Nations in New York, Dr. Singh met with the Prime Minister of Britain Gordon Brown, the Prime Minister of China Wen Jiabao, the President of Pakistan Asif Ali Zardari, and the President of Namibia Hifikepunye Pohamba.

Prime Minister Singh also met with a few select members of the Indian-American community in New York on September 26.

On September 27, the Prime Minister left for France on the second leg of his visit to attend the Ninth India-European Union Summit in the port city of Marseilles.

# Prime Minister pitches for UN reforms, backs global fight against terror

**A**ddressing the 63rd Session of the U.N. General Assembly on September 26, Prime Minister Dr. Manmohan Singh said that the opening of international nuclear trade with India would impact positively on global energy security. He also made a vigorous pitch for UN reforms and collective fight against terrorism.

“The opening of international civilian nuclear cooperation with India will have a positive impact on global energy security and on efforts to combat climate change,” the Prime Minister told over 170 world leaders gathered for the session.

## Excerpts from his speech:

The United Nations is the embodiment of our faith in the benefits of collective action and of multilateral approaches in resolving global issues.

At the 2005 World Summit, we pledged ourselves to an agenda for early and meaningful reform of the United Nations.

However, we must acknowledge frankly that there has been little progress on the core elements of the reform agenda. We need to make more determined efforts to revitalize the General Assembly to enable it to fulfill its rightful role as the principal deliberative organ of the United Nations.

The composition of the Security Council needs to change to reflect contemporary realities of the 21st century.

It is only a truly representative and revitalized UN that can become the effective focal point for the cooperative efforts of the world community. We need to expeditiously hold negotiations towards this end.

Globalization has contributed to ever widening circles of prosperity and we in India have benefited from it. But its benefits have not been equitably distributed. Ensuring inclusive growth within nations and inclusive globalization across nations is



a central challenge that faces us. The development gains that many countries have made are today threatened by a possible food crisis, a global energy crisis and most recently, unprecedented upheavals in international financial markets. The net impact of these problems is that both the industrialized economies and the developing economies face inflation and a slow down in growth after several years of robust expansion.

Industrialized countries can afford periods of slow growth. Developing

countries certainly cannot. There is, therefore, urgent need for coordinated action by the global community on several fronts.

The world needs a second Green Revolution to address the problem of food security. We need new technologies, new institutional responses and above all a global compact to ensure food and livelihood security.

This will require transfer of technology and innovation from developed to developing countries. India is very keen to expand cooperation with Africa in Africa's quest for food and livelihood security for its people.

Trade liberalization in agriculture can help provided it adequately takes into account the livelihood concerns of poor and vulnerable farmers in the developing and least developed countries. The UN is a living symbol of pluralism. It has weathered many storms. It is the vehicle through which our combined will and efforts to address global challenges must be articulated and implemented.

## External Affairs Minister Pranab Mukherjee visits New York

**E**xternal Affairs Minister Pranab Mukherjee visited New York from September 28 to October 2 in connection with the 63rd Session of the UN General Assembly (UNGA). During his stay, the Minister participated in an informal UNGA plenary meeting to commemorate the second International Day of Non-Violence on October 2.

On September 29, the External Affairs Minister held bilateral meetings with Sergey Lavrov, Foreign Minister of the Russian Federation. At the meeting, the two ministers took stock of the strategic partnership between the two countries, and the state of preparations for the annual summit-level meeting between the two countries.

Lavrov will soon be visiting India in the context of the detailed and substantive agenda that is being planned for the visit, which



will seek to provide a fresh impetus to the wide-ranging bilateral relationship.

Later, Mukherjee also met with Paula G. Scoon, Foreign Minister of Trinidad and Tobago; Ojo Maduekwe of Nigeria; Dr. N Dlamini Zuma of South Africa and Salaheddin Al-Bashir of Jordan.

Mukherjee also participated in three ministerial meetings, including that of the India-Brazil-South Africa (IBSA) initiative, the India-Gulf Cooperation Council, and the South Asian Association for Regional Cooperation (SAARC). India attended an informal meeting of the SAARC Council of Ministers convened by Rohitha Bogollogama, Foreign Minister of Sri Lanka.

Bhutan, Bangladesh, Pakistan and Nepal also attended the meeting.

Afghanistan and Maldives were represented by senior officials. The Secretary-General of SAARC was also present.

## Economic growth must be inclusive: Chidambaram

**E**conomic growth must be socially inclusive and regionally balanced, said Indian Finance Minister P. Chidambaram. He was speaking at a round table on 'Poverty and Hunger' at a high-level event on the Millennium Development Goals convened by the Secretary-General and the President of the General Assembly at the U.N. in New York on September 25.

### Excerpts from his speech:

"In 1990, more than 1.2 billion people, 28 percent of the population of developing countries, lived in extreme poverty. By 2004 this had been reduced to 980 million.

In India, a growth rate of around 8.9 percent for the past four years has allowed us to make considerable progress in the eradication of extreme poverty.

In India, we recognize that economic growth must be socially inclusive and regionally balanced.

We have taken major initiatives in agriculture and rural development, in industry and urban development, in infrastructure and services, and in education and healthcare, aimed at promoting inclusive growth.



We have recently adopted our Eleventh Five Year Plan for the years 2007-2012.

Its monitorable targets include generation of 58 million new work opportunities, reduction in the head-count ratio of consumption poverty by 10 percentage points and reduction in infant mortality rate (IMR) to 28 and maternal mortality ratio (MMR) to 1 per 1,000 live births, and by 2011-12 increasing the literacy rate of children of age 7 years or more to 85 percent,

reducing the dropout rates of children at the elementary level to 20 percent, and the gender gap in literacy to 10 percentage points.

The last year has seen major changes in the global economy with the very high food and oil prices and the disproportionate impact of climate change seriously jeopardizing the gains against hunger, poverty and disease in many developing countries.

To prevent food shortages and continuing hunger in the developing world in particular, there is a need for a quantum leap in agricultural productivity, food grain output and farm incomes in the developing countries.

We are confident that the world has enough resources and ability to cope with this crisis.


All studies on attainment of MDG goals have identified lack of finances as the main impediment and have called for vast increases in Official Development Assistance (ODA).

Despite many developed countries having increased their ODA, the imperative to reach the goal of 0.7 percent of Gross National Income on an urgent basis cannot be overstated.

This urgency is underscored by the very limited time that we have to reach the MDG targets.

When we adopted the Millennium Declaration we wanted to mount a frontal attack on poverty, hunger, ignorance and disease, and that its benefits would percolate across the globe.

But eight years later, and more than half-way to our target date of 2015, we are discussing implementation of the MDGs with a realization that most developing countries will not be able to achieve these goals. This situation must change.

We welcome the initiative of the U.N. and others, and urge that we act urgently and collectively in a global partnership to translate commitment into concrete action in the interest of our future generations." 

## Montek Singh Ahluwalia calls for more multilateral surveillance



**A**t a media briefing in New York, after Prime Minister Dr. Manmohan Singh met with British Prime Minister Gordon Brown on September 26, Planning Commission Deputy Chairman Dr. Montek Singh Ahluwalia called for more multilateral surveillance of the global economic order.

Briefing reporters, he said that globalization had produced an integrated financial world around the world, which did not have a single monetary authority that could become responsible for taking care of global problems. "The IMF lends to countries but today what you have is financial fragility which leads to weaknesses in financial institutions and may be loss of market confidence in certain kinds of financial instruments," he pointed out while talking about the role of the IMF in the backdrop of the global financial crisis.

## Defence Minister A. K. Antony visits US

**T**he Defence Minister of India A.K. Antony visited United States from September 7 to 10, 2008 at the invitation of the US Secretary of Defense Robert Gates, who had visited India in February 2008. The Indian delegation included the Defence Secretary Vijay Singh, GOC-in-C Eastern Command Lt Gen V.K. Singh, Director General (Acquisitions) Shashi Kant Sharma, Deputy Chief of Naval Staff Vice Adm. Anup Singh and Air Marshal S. Mukerji. The last time that a Defence Minister from India visited the United States was in June 2005 when India and the United States signed the New Framework for Defence Relations.

Defence Minister A.K. Antony was received by Secretary Gates at the Pentagon with an Armed Forces Full Honor Parade. In their discussions, Secretary Gates and Defence Minister Antony expressed satisfaction over the deepening defence cooperation between the two countries and the regularity of joint exercises between the defence forces. They also discussed regional and international issues, including the situation in Afghanistan and other matters of mutual concern. After the meeting, Defence Minister also laid a wreath at the "Tomb of the Unknown Soldier" at the Arlington National Cemetery.

In addition to his meeting with Secretary Gates, the Defence Minister also met Secretary of State Condoleezza Rice and National Security Advisor Stephen Hadley. The Ambassador of India to United States Ronen Sen was present at all meetings.

Prior to the start of his official visit, the Defence Minister met members of the Indian community at the Indian Embassy in Washington DC. Community members in the Washington Metropolitan Area participated in the event in large numbers. Before his departure from Washington DC, the Defence Minister also briefed the media about his discussions with US officials.



Defence Minister A. K. Antony with U.S. Secretary of Defense Dr. Robert M. Gates at the Pentagon on September 9.

### EX VAJRA PRAHAR 08-02



**T**he second edition of 'Exercise Vajra Prahar' (08-02), a joint India-U.S. Military Combat Free Fall (CFF) training was carried out at Andersen Base, Guam, from August 4 to August 24, with the aim of enhancing cooperation between Indian and U.S. Special Forces. Twenty-five officers and men selected from Para and Para (SF) battalions participated in the exercise. All members of the team are highly experienced in CFF techniques and capable of executing HAHO/HALO descents using oxygen equipment.

Vajra Prahar 08-01 was held in India from August 4 to 24 at the Counter Insurgency and Jungle Warfare (CIJW) School in Mizoram's Vairengte.

## Ambassador Sen hosts reception in honor of Prime Minister Dr. Manmohan Singh

**A**mbassador Ronen Sen attended the Republican Party National Convention held in Minneapolis from September 1-5, where he hosted a lunch for Indian-American delegates.

On September 11, Sen attended the Pentagon Memorial dedication at the Pentagon, hosted by the U.S. Secretary of Defense.

The Ambassador and Mrs. Sen hosted a reception at their residence on September 16 for a Parliamentary delegation from India on a goodwill visit to the USA. The delegation, led by the Hon'ble Minister for Parliamentary Affairs and Overseas Indian Affairs, Mr. Vayalar Ravi, comprised two other Ministers of State — Mr. Pawan Kumar Bansal, Minister of State for Finance and Parliamentary Affairs, and Smt. Suryakanta Jaiwantrao Patil, Minister of State for Rural Development and Parliamentary Affairs, and 16 other Members of both Houses of Parliament from a cross-section of political parties and from different regions of India. Such a Parliamentary delegation had last visited the USA five years ago.

On September 17, the Ambassador attended the annual Iftaar Dinner hosted by President Bush in the White



The Prime Minister Dr. Manmohan Singh addressing a reception hosted by Ambassador Ronen Sen for the Indian Community in New York on September 27.

House in observance of the holy month of Ramadan.

The Ambassador delivered the inaugural address at the Fifth India Investment Forum at the Waldorf Astoria Hotel in New York on September 23. The three-day Forum attracted over 300 participants, including high-level business and government representatives from India.

During the brief visit of the Hon'ble

Prime Minister, Dr. Manmohan Singh, to the United States, the Ambassador accompanied him for the meeting and dinner with President Bush at the White House on September 25. In New York, Sen hosted a series of events in honor of the Prime Minister. He hosted a reception in honor of the Prime Minister and Smt. Gursharan Kaur at the Waldorf Astoria Hotel on September 27 for the Indian-American community.

Earlier on September 24, Sen hosted a luncheon meeting of the Prime Minister with CEOs of major U.S. companies, including Co-Chair of the India-U.S. CEOs Forum, William Harrison, Chairman & CEO of Merrill Lynch, John Thain, Chairman & CEO of Dow Chemicals, Andrew Liveris, President & CEO of Time Warner, Jeffrey Bewkes, CEO of Citigroup, Arvind Pandit, Chairman & CEO of American Express, Kenneth Chenault, President & CEO of AES Corporation, Paul Hanrahan, Chairman & CEO of Blackstone, Stephen Schwarzman, President & CEO of Adobe Systems, Shantanu Narayan, CEO of General



A section of the members of the Indian Community at the reception in New York in honor of the Prime Minister on September 27

Atlantic, William Ford, and others.

Sen convened an interactive meeting of the Prime Minister with a select group of Indian Americans on September 26. Sen also convened a meeting of the Prime Minister with leaders of major American Jewish organizations, including the American Jewish Committee, the America-Israel Public Affairs Committee, World Jewish Congress, Jewish Institute of National Security Affairs, Conference of Presidents of Major American Jewish Organizations, American Jewish World Service, American Jewish Joint Distribution Committee, Anti-Defamation League, Bnai Brith International and Jewish National Fund, on the evening of September 24.

The Ambassador convened a meeting in New York of Consuls General of India in the USA, presided over and chaired by Mr. Pranab Mukherjee, Hon'ble Minister of External Affairs, on September 30. Consul General in



Minister for Parliamentary Affairs and Overseas Indian Affairs, Mr. Vayalar Ravi, addressing the Indian community at the reception hosted by Ambassador Ronen Sen at his residence in honor of the Indian Parliamentary Delegation on September 16.

Chicago, Ashok Kumar Atri, Consul General in Houston, S.M.Gavai, Consul General in San Francisco, Sushmita G. Thomas and Consul General-designate in Houston,

Sanjeev Arora were present. The Minister was assisted by Ambassador Sen and Special Secretary in the Ministry of External Affairs, Vivek Katju.



## Amjad Ali Khan renders rare solo performance

Sarod maestro Amjad Ali Khan performing in a rare solo performance at the Jack Morton Auditorium at the George Washington University in Washington, D.C. on September 17, 2008. The event was sponsored by the Embassy of India, Asia Society Washington, and the India Initiative of the Sigur Center for Asian Studies at George Washington University.

## Essar Steel Holdings to invest over \$4 billion in US

**E**ssar Steel Holdings, a part of Essar Global, has lined up investments of more than \$4 billion in North America. The investments would be made in



the company's acquisitions of Algoma in Canada and Minnesota Steel in the United States as well as greenfield plants in Trinidad & Tobago.

The inaugural ceremony for the first steelmaking facility in Minnesota's Iron Range was held on September 20. Essar Steel currently has a capacity of nine million tonnes across geographies but has set a target of 20-25 million tonnes capacity.

Minnesota was acquired in 2007 and has more than 1.4 billion tonnes of iron ore in the Mesabi range. Besides iron mining and production, the \$1.6 billion project would include a concentration

plant, a pellet plant and a direct reduced iron (DRI) plant and steel-making facility. At full production, Essar Steel Minnesota would employ nearly 500 people and up to 2,000 construction workers over the course of the

project. Iron ore pellets would be produced within two years from the start of construction. Production of DRI pellets and steel slabs were expected to begin from the fifth and sixth year onward, respectively. The production from the facility would also support the Essar Steel Algoma in Sault Ste Marie, Ontario, Canada.

Essar has committed a capex of \$500 million in Algoma for the next five years.

Following the acquisition, Essar Steel Algoma increased its capacity from 2.4 million tonnes to four million tonnes in less than a year. ■

## India to be key R&D center for Airbus A350



**I**ndia will be one of the key centers for design and development of the A350 aircraft, European aircraft manufacturer Airbus' answer to the Boeing 787 Dreamliner.

Designing work for the A350 is the next project for the Airbus Engineering Centre India (AECI), the company's hi-tech aircraft component manufacturing facility in Bangalore, which started functioning in April last year.

"The A350 is the next big project for us. The engineers at the facility are currently working on the development of tools to design the aircraft," said

Kiran Rao, president, Airbus India. "We will soon get the software for analyzing the stress and strain on aeroplanes. We are working on the structural analysis of the aircraft among other things," he added.

Rao said Airbus was recruiting engineers for the work every month. The center has 35 engineers and the number is supposed to grow to 300 in the next four years. The A350 XWB (Xtra Wide Body), the new and improved version of the A350, has been built to take on the Boeing 777 family and some of the models of the Boeing 787.

The aircraft has a wider fuselage, which makes it possible for it to accommodate nine people in every row. "We have already sold (which means received orders) 480 A350s, out of which 15 to 20 are being bought by Kingfisher," said Rao. The aircraft will be put into service from 2013. ■

## India set to meet \$200 bn export target

**I**ndia is set to meet its export target of \$200 billion this fiscal, according to Union Commerce secretary G.K. Pillai. This year, during the April to July period, India's exports grew by 24.6 percent over the corresponding period last year, to touch \$59.19 billion. "We are well on target to achieve a 25 percent growth in exports," elaborated Pillai.

Last year, the country's total exports stood at \$159 billion, having risen from \$65 billion in 2004. Allaying fears of sharp fluctuations of the rupee adversely impacting the industry, Pillai said: "Our industry is mature enough to live with it." However, he added that there would be some marginal impact on sectors like gems and jewelry. He further added that Indian exports are spread across the globe, thereby minimizing risk. Only 18 percent of the total exports go to the U.S. market, and so "our risk is also widely spread", said Pillai.

## Air India gets \$549 mn Ex-Im Bank loan



**T**he Export-Import Bank (Ex-Im Bank) of the U.S. has given India's national carrier Air India \$548.6 million in loan guarantees to support the purchase of Boeing aircraft.

Air India chairman and managing director Raghu Menon and Ex-Im Bank chairman James H. Lambright signed the deal on September 19 at the bank headquarters in Washington. Air India is officially called the National Aviation Company of India Limited (NACIL).

"We greatly value Ex-Im Bank's contribution in partnering with Air India in our project to acquire 68 state-of-the-art aircraft from the Boeing Company," said Menon.

"Induction of these modern aircraft into our fleet will be a major step forward in making Air India a truly global airline through a significant expansion of our international network," he said.

"The fast-growing Indian market offers enormous opportunities for U.S. exporters in many sectors including transportation, energy and infrastructure development," said Lambright.

## Kingfisher plans flight to San Francisco from Nov

India's Kingfisher Airlines plans to launch its direct flight Bangalore-San Francisco from November 1, connecting India's IT hub with the Silicon Valley, its chief executive Vijay Mallya said in Bangalore recently.

"We will launch our direct flight to San Francisco from November 1, connecting the Silicon Valley in the U.S. with India's IT hub. As there is an open-sky policy in the U.S. we will have no problem in getting operational clearances after we acquire more brand new Airbus aircraft (A330-200) for the long-haul flights," Mallya said.

"The conclusion of an Open Skies Agreement between India and the



United States in April 2005 has improved the connectivity between the two countries significantly. Six new daily direct flights have commenced since its signing. Another new daily flight has started via Brussels.

"The increase in the number of convenient connection is one of the major factors which has boosted tourism arrival from U.S. into India by 32 per-

cent between 2004-06," he added.

Kingfisher made its international debut on September 3 with a non-stop daily flight on the Bangalore-London route. Bangalore is home to about 1,600 IT firms, generating huge international inbound and outbound air traffic from corporates, business and leisure travelers round the year.

According to industry estimates, about 12,000 passengers fly between Bangalore and San Francisco every month. In the absence of direct flights between the two 'Silicon Valleys', most travelers are forced to take connecting flights from Mumbai, New Delhi or Chennai and vice-versa. ■

### Ranbaxy Fine buys US firm Mallinckrodt Baker for \$340 million

ICICI Venture-controlled Ranbaxy Fine Chemicals (RFCL) has succeeded in its bid to acquire the US-based speciality chemicals major Mallinckrodt Baker in a deal estimated at \$340 million, sources close to the development said.

Once the transaction is concluded, RFCL will be acquiring a company that is over three times its size. ICICI Venture is likely to fund the equity portion of the deal while debt will be provided by ICICI Bank. A couple of other foreign banks could also join the



Indian bank to fund the deal. A formal announcement will be made shortly, and the deal will be completed over the next two months. Mallinckrodt Baker is part of the \$10-billion healthcare giant Covidien, formerly Tyco Healthcare.

Sources said that the deal structure was yet to be completely finalized. ICICI Venture could put in anywhere in the range of \$100 as equity contribution to the deal. The debt is likely to be priced at around 400 basis points above Libor. ■

### Indians dominate Forbes' lists



Pointing out that Asia was home to the world's fastest growing population of the wealthy, *Forbes* said India was keeping pace in the money race. "The country's millionaires jumped 23 percent last year. The billionaire count soared to 53 from 36 the previous year," the business magazine said.

Six Indians, including Ranbaxy's Malvinder and Shivinder Singh, real estate firm Oberoi Constructions' Vikas Oberoi and online gambling entity PartyGaming's founder Anurag Dikshit have made it to the Forbes' list of 15 youngest Asian billionaires. The other two Indians in the list are Suzlon Energy's Girish Tanti and Indiabulls' Sameer Gehlaut.

In another Forbes' list, ten Indian companies led by Bharat Heavy Electricals Ltd, Bharti Airtel and HDFC Bank figure in the top-50 biggest listed companies of the Asia-Pacific region, out of a universe of 500.

Also, Congress President Mrs. Sonia Gandhi, Uttar Pradesh Chief Minister Mayawati, PepsiCo chief executive Indra Nooyi and Biocon founder Kiran Mazumdar-Shaw have been featured in the latest annual list of *Forbes* '100 Most Powerful Women'. Nooyi is ranked third whereas Mrs. Gandhi is 21st in the list, while Mayawati and Mazumdar-Shaw have been ranked 59th and 99th, respectively.

### Economic zone exports to grow four-fold by '08-09

Exports from special economic zones (SEZs) have registered a growth of 192 percent between 2005-06 and 2007-08, and are likely to tot a phenomenal 451 percent rise by 2008-09, according to an assessment by an industry lobby released recently.

The study by the Associated Chambers of Commerce and Industry of India (Assocham) cited official data to say that after the SEZ Act came into being in 2005-06, exports from these zones had risen from \$5 billion to \$14.61 billion in 2007-08, marking a 192 percent growth.

"In 2007-08, the total exports of India as per official figures between April-December

are estimated at \$104.89 billion. Thus their contributions to the total domestic exports have gone up from 5.004 percent in 2005-06 to 13.93 percent in first nine months of 2007-08," the report said.

"By 2011-12, we expect SEZ exports going up to over \$125 billion as by then realistically, all the controversies relating to SEZs would be resolved," said Assocham president Sajjan Jindal while releasing the chamber assessment.

According to Assocham, by 2011-12, SEZs are expected to create direct employment opportunity for a 10 million skilled workforce.

## Foreign news magazines can have Indian editions

The Indian government on September 18 further relaxed its media policy by allowing foreign news magazines to have Indian editions.

A Cabinet notification said such publications would cover those falling in the news and current affairs category. However, permission would be granted only to those Indian companies registered under the Indian Companies Act, 1956, an official statement said. The publishers of such editions would be eligible for 26 percent foreign direct investment, it said.

The notification said the decision would provide Indian readers access to foreign magazines at cheaper rates in comparison to the same magazines imported at much higher rates. Outlining the parameters for granting such permission, it said that the Indian companies would be allowed to enter into financial arrangements with the owners of the foreign magazines.

Permission would be on condition that at least three-fourths of the directors on the board of directors of the applicant Indian company and all key executives and editorial staff are resident Indians.

The title of the magazine should be verified and subsequently registered at the Registrar of Newspapers for India. The content would be allowed to be up to 100 percent identical to the foreign magazine concerned and the India publisher would be free to add local content.

## '49% FDI in defense to be allowed selectively'

The government on September 20 said that it would consider allowing 49 percent foreign investment in the defense sector "on a case-to-case basis".

"We will stick to the policy of allowing 26 percent FDI in Indian defense sector. We will consider allowing 49 percent FDI only on a case-to-case basis, if the industry is able to convince us," Defense Minister A.K. Antony told a seminar on defense procurement policy in New Delhi recently.

Stating that India favored openness in its defense deals, Antony assured the industry there would be no more "veil of secrecy" surrounding the tendering process.

"We believe in open deals. There will be no more veil of secrecy. Details would be made available to all industry representatives by placing the tenders on the net, except in the most sensitive cases, which is a minuscule number," he said.

# India aims to attract 10 million foreign tourists by 2010

The government plans to attract 10 million foreign tourists by 2010. "Keeping in mind the very positive tourism trends and the sector's potential

for additional employment and revenue generation, we have set a target of 10 million foreign tourist arrivals by 2010," said Tourism Secretary Shilabhadra Banerjee at a conference on cruise tourism.

"If we achieve this target, it would result in an inflow of \$9 billion in foreign exchange earnings and create 15 million additional jobs," Banerjee said at a conference organized by industry lobby Federation of Indian Chamber of Commerce and Industry.

The government has also announced its plan to set up cruise terminals at Chennai, Mumbai, Goa and Kochi ports.

"The government proposes to give incentives to these ports so they could



strike a balance between the high revenue generating cargo ships and cruise ships," said Shipping Secretary A. P. V. N. Sarma.

He said that the government was in the process of ironing out certain issues like tax on bunkers and speeding up immigration procedures to boost cruise tourism.

India's cruise tourism industry could witness an over three-fold rise in tourist arrivals at Indian ports from the current level of 180,000 to 600,000 by 2010.

Tourism Secretary Banerjee also underlined the high potential of cruise tourism in the country, saying that India had recorded a 310 percent increase in cruise tourism between 2002 and 2006.

He said that while overall tourism arrivals grew at 14.3 percent, foreign exchange receipts had increased by 24.3 percent in 2007.

## Pepsi announces \$500 mn investment in India

PepsiCo chairperson and chief executive Indra Nooyi on September 21 announced an investment of \$500 million in India over the next three years to triple revenues by 2014.

The investment would be spread over manufacturing, market infrastructure, environment sustainability initiatives, research, new products and agriculture, the Chennai-born Nooyi said.

"The new investment will contribute 50,000 new direct and indirect jobs to the Indian economy," she said at a press conference in Gurgaon.

"India is among the top five market of PepsiCo and we remain extremely bullish on the country," she added.

Nooyi was in India to chair the \$39-billion food and beverages giant's two-



day annual conclave held on September 22 to 23.

Besides Nooyi, some of the top executives at the meeting included chief executive and vice chairman Michael D. White, senior vice-president and

general counsel Larry Thompson, and PepsiCo U.K. president Salman Amin.

PepsiCo, which entered India in 1989 mainly as a beverages company, has invested \$700 million in the country so far. It has 43 bottling plants in India, of which the company owns 15, while the rest are operated by franchisees.

It also has three factories to manufacture the Frito-Lay range of potato chips, Cheetos extruded snacks, and traditional Indian snacks under the Kurkure and Lehar brands.

## Infrastructure segment set to draw over \$345.28 bn by 2012

According to Crisil research estimates, eight infrastructure sectors, including oil and gas, power, roads, ports, airports, railways, urban infrastructure and telecom, are expected to draw more than \$345.28 billion investment in India over the 2007-08 and 2011-12 period.

Rising financial overheads due to high interest rates as well as a global slowdown are not likely to impact investments much as infrastructure projects have long gestation periods, the Crisil report revealed.

Further, the telecom sector has the least risk potential of the lot. The report forecasts that during the specified period, power will grow at 60 percent, roads at 100 percent, airports at 400 percent, ports by 160 percent and railways at 250 percent.

Crisil Research head Sachin Mathur said: "There are three key reasons for being confident about investment in Indian infrastructure — improved institutional framework for enabling infrastructure investments, especially by the private sector; experience gained by governments, regulators and players



regarding the process of participation through concessions in infrastructure projects". The third key reason, Mathur added, was the improved project execution and financial capabilities of players which allow them to handle multiple, larger and more complex projects.

Meanwhile, India's largest and most prestigious global investment forum returned for its fifth year in New York on September 22-23 as a private event for portfolio and direct investors seeking to leverage investment opportunities in India. The Fifth Annual India Investment Forum provided fresh perspectives on India's economic growth, financial markets and key industries in the year ahead.

## Goldman gets approval for India equity fund

The Indian fund unit of Goldman Sachs, which received regulatory approval to launch mutual funds late September, filed initial papers with the



Securities and Exchange Board of India to offer its first equity fund.

Goldman Sachs India Equity Fund will invest at least 65 percent of its assets in stocks and the rest in debt and money market instruments, the firm said in its offer document.

This is unlike the strategy followed by an Indian fund venture of French insurer AXA and the fund unit of Edelweiss Capital, who have started off in the last

two months offering debt funds as flows into stock funds slumped.

Investors, who have seen their portfolio values shrink nearly 40 percent in the first six months

of 2008, poured only \$595 million in equity funds in July, the lowest in two years, data from the Association of Mutual Funds in India showed.

Most of the inflows are coming into debt products with fixed maturity plans, which are close-end fixed income funds, cornering 68 percent of the total \$21 billion inflow into new funds in the first seven months of 2008.

## Government amends 3G guidelines

The Indian government on September 11 amended the 3G telecom policy to allow only those having a license or experience of running such a service to apply for spectrum, while also changing norms for levy of annual spectrum fee.

The Department of Telecom (DoT) has said that any person who holds a Unified Access Service License (UASL) or Cellular Mobile Telecom Service License or who has previous experience of running 3G telecom services can bid for spectrum.

DoT has already started the process of appointing an agency to conduct a spectrum auction while the agency is expected to be in place soon. For those with experience of running 3G, the new condition mandates that they give an undertaking to obtain UASL as per DoT guidelines. This means that non-license holders for 3G spectrum would have to pay \$355 million as pan-India fee. As far as annual spectrum charges are concerned, DoT has amended the norms and now the companies would have to pay the charges at the rate of 1 percent on the "incremental revenue due to 3G services" after a period of one year and the method for this shall be notified separately.

## Wipro ties up with US-based Harman



The bellwether Wipro Technologies on September 2 announced a partnership with the US-based Harman International Industries for co-development of embedded audio and infotainment products for automotive, consumer and professional markets.

Under the partnership, Wipro will set up a Harman India development center at its Bangalore and Chennai facilities, with about 250 engineers initially and ramp up the resource strength to over 1,000 employees by 2011. The \$4.1-billion Harman designs, manufactures and markets a range of audio and infotainment products for the automotive, consumer and professional markets. "As the world's largest provider of R&D services, we will bring a range of capabilities to Harman's solutions. The new center will focus on software and hardware engineering to develop next-generation embedded solutions for Harman's customers worldwide," Wipro joint chief executive Suresh Vaswani said.

# Gartner sees \$110 bn Indian IT market by 2012

**E**nd-user spending on information technology (IT) in India is expected to grow at a compounded annual growth rate (CAGR) of 14.8 percent from 2007 through 2012 to generate \$110 billion in 2012, according to leading global IT market tracker Gartner Inc.

In 2008, IT end user spending is on pace to reach \$64.7 billion, a 17.2 percent increase from 2007, a Gartner statement said on September 11.

This prediction, supplemented by a robust gross domestic product (GDP) averaging 8.08 percent growth from 2007 through 2012, means that the Indian market continues to represent a significant growth opportunity for IT vendors, the statement said.

India is poised for double-digit

growth across many vertical markets, with financial services and communications organizations spending the most on IT, closely followed by services, manufacturing and government.

"Indian businesses continue to invest in IT in order to drive operational excellence and innovation," said Naveen Mishra, senior research analyst at Gartner. "Small and midsize businesses will drive the growth of various IT-related industries, with the critical involvement of value added resellers, distributors and retailers," he added.

Some of the other highlights of the Gartner report 'Emerging Market Analysis: IT, India 2008 and Beyond' for end user spending during the period 2007 to 2012 are:

- Spending on computing hardware

market will grow at a CAGR of 15.4 percent.

- Spending on software will grow at a CAGR of 16.3 percent.

- Spending on IT services will grow at a CAGR of 20.2 percent.

- Spending on telecommunications will grow at a CAGR of 14.1 percent

The report also made some key predictions for the Indian IT market like:

- By 2012, the Indian market will ship nearly 24 million personal computers.

- The Indian server revenue market is poised for a 6.3 percent CAGR from 2007 through 2012.

- The total software market in India will reach \$3.4 billion by 2012.

- India's domestic IT services market is the fastest-growing market in Asia/Pacific.

## Airtel ties up with Hewlett-Packard

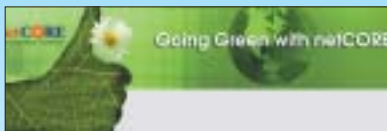
**I**ndia's leading private telecom operator Bharti Airtel every HP and Compaq notebook and desktop, a company statement said. Airtel on September 4 announced its collaboration with US-based computer maker Hewlett-Packard (HP) to promote broadband and computer penetration in the country.

With this partnership, Airtel will offer consumers a broadband connection at discounted entry cost with

Under the offer, customers will get an Airtel broadband connection at consumer-friendly terms that include zero security deposit and installation fee, free Wi-Fi connection and discounts on broadband rental up to 14 months, the statement added.

## Netcore, US firm tie up for news on mobiles

**M**umbai-based Netcore Solutions has tied up with US-owned Buzzintown.com to provide news of



events in metro cities to those mobile phone users who opt for it, a company statement said in New Delhi on September 11.

Netcore arm MyToday Dailies, a leading provider of opt-in news via short messaging service (SMS) on mobile phones will initially provide the service in Mumbai, Delhi and Bangalore. Later, the service will be extended to Ahmedabad, Chennai, Jaipur, Lucknow, Hyderabad, Kolkata and Pune, the statement said.

To get the news service on their mobile phones, users will have to SMS "START BuzzinMum" or "START BuzzinDel" or "START

BuzzinBlr" to 56070 and receive information on all that is happening in the respective cities via a free

daily SMS. "We are always looking to introduce unique value added services to our subscribers," said MyToday Dailies chief executive Abhijit Saxena.

"Our tie-up with Buzzintown.com offers us the opportunity to bring information on events and happenings to users of Buzzintown's online portal and our existing subscriber base," he added.

Talking about the tie-up, the Buzzintown managing director Amitabh Saran said: "Our tie-up with MyToday enables our users to have access to their favorite high-quality event content wherever they are."

## Tata Communications invest \$11.5 mn in US firm



**T**ata Communications has announced that it has invested \$11.5 million in convertible debt in BitGravity, a US-based firm which specializes in Content Delivery Network (CDN). This investment is a further consolidation of a cooperation between these two firms after a strategic partnership, which was signed in March 2008.

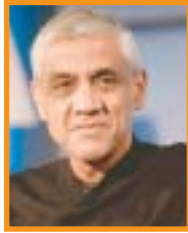
BitGravity builds technology to deliver video on demand, live broadcasts and interactive applications for massive audiences on the Internet. This technology enables consumers to play streaming videos instantly and live video with no buffering on the Internet. With this technology, Tata Communications now offers this service throughout Europe, North America and India. According to Tata, this CDN service delivers immediate access to content, including high-definition video, without delay or jitter, and good levels of throughput for end users. Tata Communications' global reach includes a national fiber backbone network and access to network in over 60 cities in India, strategic investments in South African converged services operator, Neotel, Sri Lanka and Nepal and a conditional 50 percent ownership in China Enterprise Communications providing full country VPN coverage in China.

## Four PIOs on Forbes' richest Americans list

**T**ech guru Vinod Khosla and three other men of Indian origin are on the 2008 list of the 400 richest Americans prepared by *Forbes* magazine.

The list, released on September 17, is topped by Microsoft founder Bill Gates, followed by legendary investor Warren Buffet with fortunes of about \$57 billion and \$50 billion respectively.

Oracle Corp. founder Lawrence Ellison, worth \$27 billion, is in the third position. While Khosla, co-founder of Sun Microsystems and a venture capitalist, is ranked 355 with a personal wealth of \$1.4 billion, the other three Indian Americans on the list are Google investor Kavitark Ram



Vinod Khosla

Shriram (rank 281), Syntel founder Bharat Desai and family (321), and Amar Bose (also ranked 321) of Bose Sound Systems.

All four are self-made billionaires. To get on the *Forbes* list, the minimum net worth needed was \$1.3 billion this year.

Shriram, 51, with a personal wealth of \$1.7 billion, is a Chennai-born entrepreneur who started at Netscape in 1994. An early investor and a board member of Google, he still owns 1.3 million shares worth \$600 million.

Khosla, 52, also based in California, is an Indian Institute of Technology (IIT) alumni with an MBA from Stanford. He co-founded electric design automation company Daisy Systems in 1980.

Two years later he joined others to form Sun Microsystems. Florida-based Desai was born in Kenya 55 years ago, but moved to India at age 11. After getting an IIT degree, he moved to the U.S. in 1976 to work at TCS. Bose, now 78, started repairing radios in high school. He built his brand on groundbreaking loudspeaker design. Today, Bose iPod docks, surround-sound home speaker systems and headphones dominate the market. ■

### Now, for a cheaper, better solar cell

**A**n Indian-American researcher is working with a team of Utah University engineers to design cheaper, lighter and better solar cells.



Dinesh Rakhwal, doctoral student in mechanical engineering, said: "We're coming up with a more efficient way of making germanium wafers for solar cells — to reduce the cost and weight of these solar cells and make them defect-free."

Germanium serves as the bottom layer of the most efficient existing type of solar cell, but is used primarily on National Aeronautics and Space

Administration (NASA), military and commercial satellites because of the high expense. Raw germanium costs about \$1,360 per kg.

The improved 'wafer-slicing' method will help make high-efficiency solar cells for use even on roof tops, where cost now is a factor, said Eberhard Bamberg, assistant professor of mechanical engineering.

The new method for slicing solar cell wafers — known as wire electrical discharge machining (WEDM) — wastes less germanium and produces more wafers by cutting even thinner slices with less waste and cracking. ■

### Oral diabetes drugs carry cardiovascular risks, says Indian-American expert

**A** class of oral drugs used in treating Type-2 diabetes by lowering blood sugar may make heart failure worse, says a new report co-authored by an Indian-American expert.

"We strongly recommend restrictions in the use of thiazolidinediones (a class of oral drugs) and question the rationale for leaving rosiglitazone on the market," wrote Sonal Singh, assistant professor of internal medicine, and Curt D Furberg, professor of public health sciences, Wake Forest University School of Medicine in an

editorial in the journal *Heart*.

Rosiglitazone and pioglitazone are the two major thiazolidinediones. "At this time, justification for use of thiazolidinediones is very weak to non-existent," said Singh and Furberg.

But diabetics also experience elevated rates of high blood pressure and high levels of cholesterol and triglyceride, which "further compound their already increased risk of developing ischemic heart disease", Singh and Furberg said.

### PIO-led team secures networks from hackers

**A** Florida Atlantic University team led by Indian-American Avinash Srinivasan has developed a system that would protect sensitive wireless sensor networks (WSN), engaged in military surveillance, from cyber attacks.



These WSNs are also extensively used in detection of anti-terrorist activities, hurricanes, earthquakes and forest fires.

The first kind of attack is the fabricated report in which phony data is sent to the base station with forged validation. Authorities monitoring a WSN for impending disaster are faced with a quandary. If the data arriving from the network is validated but false, how can they know for sure?

Conversely, the second kind of attack seeks to falsify genuine incoming data.

Srinivasan and colleagues Feng Li and Jie Wu pointed out that existing WSN systems have built-in software that can ward off the first kind of attack so that false data usually cannot be given valid credentials and those monitoring the system will be able to spot subterfuge easily.

The Florida team has now devised a Probabilistic Voting-based Filtering Scheme (PVFS) to deal with both of these attacks simultaneously. They used a general en-route filtering scheme that can achieve strong protection against hackers while maintaining normal filtering to make the WSN viable.

# Indian-origin doc wins nuclear medicine's 'Nobel'

**A**n Indian American doctor, Mathew L. Thakur, has been conferred the Society of Nuclear Medicine's 2008 Benedict Cassen Prize, often called the 'Nobel' of nuclear medicine.

Thakur, a pioneer in molecular imaging — an emerging technique that helps detect disease at the molecular or cellular level in the human body and thus helps develop personalized medicine — received the biennial \$25,000 award during the Society's 55th annual meeting in New Orleans, Louisiana, recently.

He is a professor of radiology and radiation oncology/nuclear medicine at the Jefferson Medical College of



Mathew L. Thakur

Thomas Jefferson University in Philadelphia, Pennsylvania, and a member of the Kimmel Cancer Centre.

Thakur has focussed on developing and evaluating radiopharmaceuticals for diagnostic imaging and therapy. He has produced and isolated many medically useful radionuclides and has been instrumental in the preparation of several novel radiopharmaceuticals, noted the society in its press release. Radionuclides or radiopharma-

ceuticals, also called tracers, are drugs with small amounts of radioactive material that are administered to patients, and the radiation emitted detected or photographed. In most cases, it enables physicians to quickly diagnose conditions like cancer, heart disease, thyroid disorders and bone fractures. Sometimes, this compound is also used to treat the condition.

"Among the many life-threatening diseases, cancer remains the most formidable disease for mankind," Thakur, who holds several patents, was quoted as saying. His current research focusses on finding DNA patches that can help in the early detection of breast and prostate cancer.

## Black holes bigger than sun set 'limits' on growth



**T**here are limits to how big super gigantic black holes can grow, according to the latest research led by an Indian-

American astrophysicist of Yale University.

These "ultra-massive" black holes have been shown to have masses upwards of one billion times that of our own sun, which is where they have set the limit on themselves.

Priyamvada Natarajan, associate professor of astronomy at Yale, and Ezequiel Treister, a postdoctoral fellow at Hawaii University, have shown that even the biggest of these gravitational monsters cannot keep growing forever. Instead, they appear to curb their own growth — once they accumulate about 10 billion times the mass of the sun.

These black holes, found at the centers of giant elliptical galaxies in huge galaxy clusters, are the biggest in the known universe.

Natarajan and Treister used existing optical and X-ray data of these ultra-massive black holes to show that, in order for those various observations to be consistent, the black holes must essentially shut off at some point in their evolution.

One possible explanation put forth by Natarajan is that the black holes eventually reach the point when they radiate so much energy as they consume their surroundings that they end up interfering with the very gas supply that feeds them.

## Sen on IMF panel on governance reform

**N**obel laureate Indian economist Dr. Amartya Sen has been named on a committee of eminent persons formed by the International Monetary Fund (IMF) to advise the world body on governance reform.

Chaired by South African Finance Minister Trevor Manuel, the committee would assess the adequacy of the Fund's current framework for decision making and advise on any modifications that might enable the institution to fulfill its global mandate more effectively, the IMF managing director



Amartya Sen

Dominique Strauss-Kahn said. "Important progress has been made in the reform of the IMF's governance, including the initiation of a process to realign members' voting power within the Fund," he stated.

"However, the task of enhancing the Fund's legitimacy and effectiveness must also come to grips with the question of whether the significant changes since the establishment of the Fund require reform of the institutional framework through which members' voting power is actually exercised," Strauss-Kahn added.

## PIO soprano gets 2008 Marian Anderson Award

**A** 1988 Oberlin graduate, soprano Indira Mahajan is the recipient of the 2008 grant for mid-career American singers called Marian Anderson Award.

Mahajan is trained at the New School's Mannes College of Music and performs as a soloist with Washington National Opera. She recently performed at Terrace Theater.

Named after Philadelphia's pioneering opera singer, the award is given to American singers of great promise who have already



achieved some success in opera, recital, and orchestra/oratorio repertory.

Mahajan flirted with becoming a voice major in college before deciding on African-American studies. After graduation, she returned to her voice training at the New School's Mannes College of Music and the Academia Musicale Ottorino Respighi in Italy. She now sings with the New York City Opera and appears with several national and international companies.

## NOAA team visits Ministry of Earth Sciences for collaboration in earth observation

A thirteen member team from the U.S. National Oceanic and Atmospheric Administration (NOAA) led by Dr. Chet Koblinsky, NOAA Climate Program Director, visited the Ministry of Earth Sciences (MoES), Government of India, during September 7-12. Although NOAA has had a long history of project-level cooperation with India, this was the first time that NOAA had dispatched a broad team of scientists to India representing numerous disciplines. This visit was a follow-up to the signing of the Memorandum of Understanding (MoU) for "Earth Observations and Earth Sciences" between MoES and NOAA on April 16. This MoU was in response to the recognition of the importance of coop-



NOAA and MoES exchanging the project implementation arrangement pact.

eration on the Global Earth Observations System of Systems (GEOSS), modeling advances and societal applications with potential opportunities for enhanced MoES and NOAA collaboration. The goal of the

NOAA Mission was to meet with the MoES leadership and visit several MoES Institutes seeking collaborative projects for earth observations and earth sciences for societal benefits.

To highlight this week-long mission, NOAA and MoES scientists convened the first science colloquium on 'Earth Observations and Earth Sciences for Societal Benefits' in New Delhi on September 11-12. Both sides discussed collaborative projects for enhancing Indian Ocean Observations, improving monsoon and weather forecasting and climate monitoring and prediction. The overarching theme was how best to work together for better mutual understanding of these phenomena for societal benefits.

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## Astra missile successfully test fired

DRDO has successfully conducted two flight tests of Astra — the "Beyond Visual Range (BVR)" Air-to-Air missile on September 13 and 14 from the Interim Test Range, Balasore, as part of the second phase of its missile development flight trials. The missiles were launched from a ground launcher.



is to equip the Indian Air Force's Mirage 2000, MiG-29, Su-30 MKI and the Light Combat Aircraft (LCA) with an indigenously-designed beyond visual range air-to-air missile (BVRAAM). Astra is designed for an 80-km range in the head-on mode and a 20 km-range in the tail-chase mode.

The missile, which has a strike range of 25 to 40 km, uses a terminal active radar-seeker and a mid-course internal guidance system with updates to track targets.

The single stage, solid fueled 'Astra' missile "is more advanced in its category than contemporary BVR missiles and is capable of engaging and destroying highly manoeuvrable supersonic aerial targets".

The objective of these tests were to test mid-course guidance of the missiles toward manoeuvring a target aircraft using a secured data link. Simulated aircraft flight parameters were used for these flight tests. The missile is 3.6 meters long, 7 inches in diameter and has launch weight of about 154 kg. It is thus the smallest weapon of the DRDO's guided missile development program in terms of size and weight. It is capable of carrying a 15-kilo warhead. The aim

Describing 'Astra' as futuristic missile, DRDO said that the weapon could intercept its target at supersonic speeds.

## DRDO to conduct interceptor missile trial



DRDO is preparing to conduct the third trial of its advanced interceptor missile in November 2008. Dr. V.K. Saraswat Distinguished Scientist and Chief Controller R&D said, "Preparations are on to conduct the interceptor missile test for building an indigenous defense shield in early November. The test is aimed at intercepting and destroying ballistic missiles from a long range". The configuration of the upcoming trial will be different from the previous one, conducted in December 2007, as the attempt this time is to approach higher kill altitude, with accurate interception.

## India approves \$165.35 million satellite navigation project

The government on September 11 gave its approval to a satellite-based navigation system, which would meet the needs of the growing air traffic and strengthen aviation navigation system.

"The new navigation system would increase safety, improve airport and airspace access in adverse weather conditions, and enhance reliability and reduce flight delays," Civil Aviation Minister Praful Patel told reporters after a Cabinet meeting.

The new system, called the Geostationary Augmentation and Navigation (Gagan) project, will also help aircraft to take a straight route instead of navigating on an irregular path.

"All these will contribute to reduction in fuel consumption. The new system will also enhance higher air traffic within limited airspace and reduce workload and improve productivity of

air traffic controllers," the Minister added.

India will become the fourth country to have a satellite-based navigation system once the system becomes operational.

The Airports Authority of India (AAI) and Indian Space Research Organization (ISRO) are developing the new navigation system with the help of the Federal Aviation Authority (FAA) of the U.S.

The Gagan system proposes to augment the GPS data with the help of a geo-stationary satellite to be launched by ISRO.

The AAI will build the ground based infrastructure comprising reference stations, uplink earth stations and the master control centre.

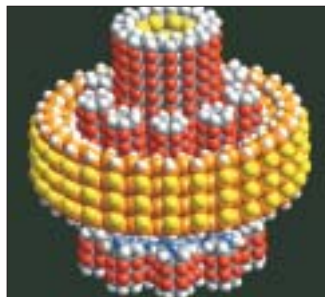
The Gagan project would cost \$165.35 million of which \$31.62 million has already been spent in the first phase of the project.

## Nanotechnology may help solve water crisis

A team of Indian scientists have explained how carbon nanotubes could replace conventional materials in water-purification systems, which could be the answer to ensuring a safe supply of drinking water for drought-affected regions or regions where water contamination is rife.

S. Kar, R.C. Bindal, S. Prabhakar, P.K. Tewari, K. Dasgupta, and D. Sathiyamoorthy of the Bhabha Atomic Research Centre (BARC) in Mumbai, India, have explained how new water purification technologies are constantly being investigated, but to be viable in the developing world, these have to be relatively simple and inexpensive to install, operate, and maintain.

They have turned to nanostructures, carbon nanotubes, hollow car-



bon fibers less than a billionth the thickness of a human hair. The unique chemical properties of carbon nanotubes mean that only very small molecules, such as water molecules can pass along their interiors, where-

as viruses, bacteria, toxic metal ions, and large noxious organic molecules cannot.

The team points out that the smooth and water repellent interior of carbon nanotubes means that a filter based on this technology would be very efficient, allowing a high flow rate of water through the filter without fouling.

The team has been investigating the potential of forming water filtration systems based on carbon nanotubes that could remove arsenic, fluoride, heavy metals and toxic organic chemicals.

## Indians find simpler way of producing transgenic mice

Scientists at the National Institute of Immunology (NII) in New Delhi have developed a technique that they claim would potentially reduce the cost of drug development worldwide. Their technique may enable biologists to produce transgenic mice in their own labs instead of having to buy them at exorbitant prices.

Since the first gene transfers into mice were successfully executed in 1980, transgenic mice (carrying human genes) have become models for studying human diseases. They are one of the most sought-after tools in drug discovery because human diseases can be induced in such mice and experimental drugs tested on them. But the current procedures for the production of transgenic mice are technically demanding, labor-intensive and very cumbersome, requiring trained personnel and costly infrastructure.

The inexpensive and less time-consuming technique recently reported by NII's Subeer Majumdar and his colleague Suveera Dhup in the journal *Nature Methods* should therefore be welcome news for the research community in general and for Indian scientists in particular.

"With this simple technique every biologist can generate his or her own transgenic animals at low cost and without the help of specialized labs or personnel," Majumdar said. Instead of inserting the foreign gene into the fertilized egg, the NII team introduced it into the undifferentiated germ cells (spermatogonia) in the male testis.

"Our reasoning was simple," explains Majumdar. "The females produce a few eggs over a span of some days whereas the males produce about 100-200 million sperms in a day. If the passing of the foreign (human) genes in animals (from one generation to the next) is to be through sperms or eggs, it is better to pick the sperms because of their high numbers."

The NII technique involves injecting the gene constructs at a specific site in the mice testis and coax them to enter the testicular germ cells (spermatogonia) by passing a mild current for a fraction of a second — a process called "in vivo electroporation". The process leads to integration of the gene permanently into the chromosomes of the male germ cells, says Majumdar.



**W**hen Jack Welch, former chief of General Electric, the world's second largest company, said a few years ago that "India is a developed country as far as intellectual capital is concerned", it was time to sit up and take notice. Welch made his remarks at the beginning of the new millennium when he was still at the helm of General Electric. Seven years down the line, India has overshoot expectations to clock several consecutive years of high-speed growth.

The country is well on the path to leveraging this intellectual capital and transforming itself into a global knowledge economy powerhouse — having already clocked \$1 trillion in gross domestic product (GDP) during 2007-08.

"I am happy to say India has experienced vigorous growth at an average of 8.8 percent per year for the past four

## INDIA: A \$1-trillion economic powerhouse

years," Prime Minister Dr. Manmohan Singh told the 15th Summit of the South Asian Association for Regional Cooperation (SAARC) — the eight-nation South Asian regional forum — in Colombo recently.

India is also well on its way to fulfilling the projections made by the top investment bank Goldman Sachs that it would emerge as the third-largest economy in two decades and the world's second-largest economy by 2050, behind China.

Former Reserve Bank of India Governor Y.V. Reddy, while moderating India's economic growth projection for the current fiscal, said the pace of growth would remain fast by any glob-

al standard. "We continue to remain the second-fastest growing economy in the world," Reddy had said.

Over the past 17 years, since India embarked on the path of economic reforms, there have been six governments and five prime ministers, but the economy has moved in just one direction — a sustained eight-percent-plus economic growth.

"I am happy that in these past 17 years, despite the many changes in Government with different political parties wielding power in New Delhi and in the States, there has been no reversal of the processes of economic reform and liberalization," the Prime Minister said.

There are other facets of India as well that speak volumes about its resurgence as a growing and emerging economy between 1990 and now.

- GDP grew from \$111.14 billion to \$1.16 trillion

- GDP growth expanded from 4.9 percent to 9.1 percent.

- Per capita income increased from \$390 to \$1021.

- Foreign exchange reserves jumped from barely \$1 billion to \$291.97 billion as on September 19, 2008.

Among the key factors driving this growth is its human capital where India is estimated to have the fourth largest reservoir of scientific talent pool. This has enabled the creation of a formidable knowledge economy.

“Today, the world looks at India — and the enterprising people of India — with respect and admiration,” the Cambridge and Oxford-educated economist-Prime Minister said recently. “By creating an environment in which the creativity and genius of the Indian people has been able to find freer expression, we have strengthened India’s global standing,” added Dr. Manmohan Singh.

As a result, the country has logged a phenomenal 33.7 percent average annual growth in its knowledge-intensive software and services industry over the last few years, taking its revenues from a mere \$12.4 billion in 2002-03 to \$52 billion in 2007-08.

Similarly, in knowledge process outsourcing, India is growing at around 25-27 percent and gross revenues are expected to shoot up to over \$10 billion by 2012 from the current \$4 billion, according to the Associated Chambers of Commerce and Industry of India (Assocham), a leading industry lobby.

Even in telecommunications — where the country’s tele-density was abysmally low even five years ago — some 8-10 million subscribers are being added to the network every month. India has also overtaken the United States, with as many as 305.24 million wireless subscribers,



**“I am confident that the Indian economy will continue to grow at 8-9 percent rates of growth and India will emerge as one of the growth engines for the world economy as a whole”  
— Prime Minister Dr. Manmohan Singh**

and ranks just below China. “If the last few years of telecom were exciting in India, it will be even more exciting in the coming years,” said Nripendra Misra, chairperson of the industry’s watchdog, Telecom Regulatory Authority of India.

In other knowledge-intensive industries, especially pharmaceuticals and biotech, Indian companies such as Ranbaxy Laboratories, Dr. Reddy’s Laboratories and Biocon are steadily climbing the global corporate pecking order to emerge among the top 5-10 global players.

To leverage the potential, the Prime Minister also announced, three years ago, the formation of the National Knowledge Commission (NKC) under noted technocrat Sam Pitroda — the man responsible for ushering in the telecom revolution in India in the eighties. The goal of the Commission was to recommend ways to convert India’s demographic

advantage of having the world’s largest set of young people — estimated at over 300 million — into knowledge capital by following a knowledge-oriented development path. “The time has come to create a second wave of institution-building and of excellence in the field of education, research and capability building so that we are better prepared for the 21st century,” Dr. Manmohan Singh said.

Following the Commission’s recommendations, the Government has accorded top priority to education, reflected by a five-fold increase in budgetary allocation. At \$67.5 billion, the allocation for education constitutes 20 percent of India’s planned allocation for the next five years.

“Indian policy makers are already starting to implement some of the key actions that are necessary to bolster India’s effective transformation to the knowledge economy,” the World Bank has observed, looking at the policy decisions taken in recent years.

The notion of a knowledge economy was neither new nor foreign to India. The country’s past achievements in science, philosophy, mathematics, and astronomy reinforce the notion that the country has for millennia been a leading “knowledge society”.

In fact, India was the world’s largest economy in the first millennium and also at the beginning of the industrial revolution around 1,700 A.D. But subsequently, its share in the world economy headed south, being a latecomer to the industrial revolution.

Now, three centuries down the line, India is again poised to become the second largest, if not the largest, economy in the world as it increasingly assumes leadership of the current knowledge revolution.

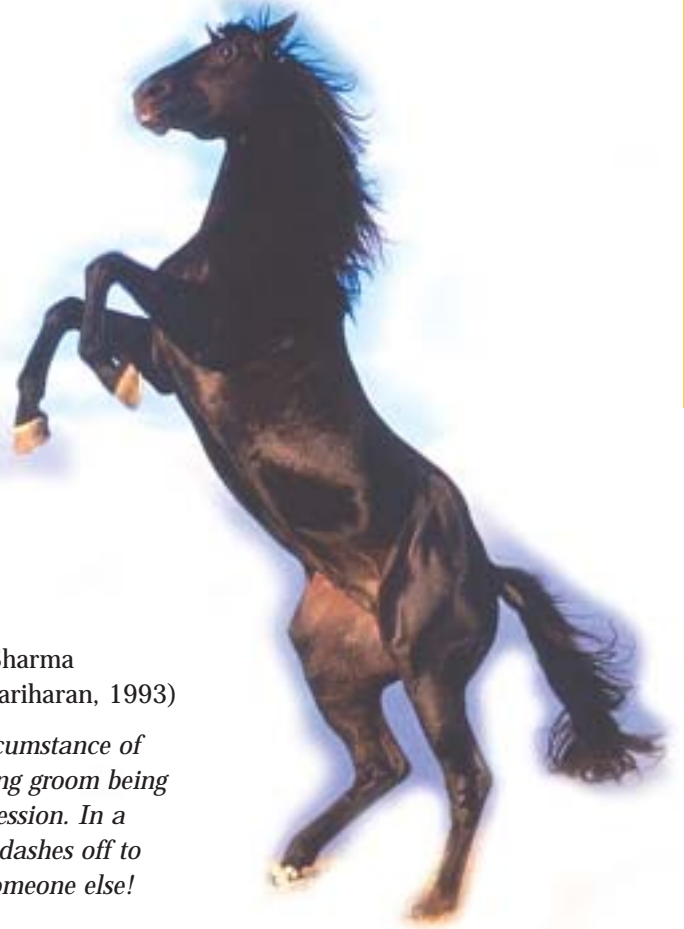
Dr. Manmohan Singh told industry leaders recently: “I am confident that the Indian economy will continue to grow at 8-9 percent rates of growth and India will emerge as one of the growth engines for the world economy as a whole.”

# Dagadu Parab's ASHWAMEDHA

By Jayant Kaikini

Translated from Kannada by Padma Ramachandra Sharma  
(First published by Katha in *A Southern Harvest*, ed, Githa Hariharan, 1993)

*Jayant Kaikini in this short tale captures the pomp and circumstance of weddings... Dagadu Parab's Ashwamedha is a story of a young groom being forced to marry and ride a horse during the wedding procession. In a humorous turn of events, the horse, once a circus maestro, dashes off to its house with the groom and Dagadu ends up marrying someone else!*



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The procession turned slowly on to Lal Bahadur Shastri Road in Mulund and proceeded down the main bazaar road, towards the station. The band, like brocade-clad gurus, led the wedding procession, followed by teenage boys with shiny moustaches. Next came middle-aged men in T-shirts that stretched tightly across their stomachs, preening themselves as they walked through the bazaar, glancing every now and then at their wives behind them. After them, a strange crowd came dancing boisterously, red powder smeared all over their faces. Right at the end, like the brake-van, followed a group of women.

In the midst of all this was the veiled bridegroom, sitting on a light brown horse, as if he was a part of its vertebral column. Strands of jasmine, hanging from his *zari* (thread made of fine gold or silver wire) turban, covered his face. A feather was about to fall off the turban. None in the procession could remember the face of the bridegroom,

Dagadu Parab. But everyone knew the man walking a little ahead of the horse, to the right, like the president. This was Balachandra Parab, the bridegroom's elder brother. He had planned the alluring spectacle of a horse in the wedding procession. He had personally persuaded the bride's people, ran around to fix up a horse, and supervised the procession to the *mandapa* (ceremonial stage) put up at the bride's house. So he walked now, watching his younger brother on the horse, now and then looking at the people in the bazaar. The fact that he was solely responsible for the first horse procession in their lives was obvious from the way he looked around him, full of importance.

The procession moved down Shivaji Road. Just when they were about to go past the Shivaji statue, a motorcycle in a garage nearby got kicked and screamed its guts out. The entire bazaar was shocked into silence by the sudden sound that pierced the sky.

And then ... Before anyone could

blink, the horse lifted its forelegs and neighing hysterically, galloped away like lightning, carrying the blustering bridegroom along. Poor Dagadu! He yelled, his voice sounding strange. He was swinging this way and that, as if not sure which way to fall.

The stunned, speechless moment was followed by a commotion. People who had formed the procession scattered into any street that caught their eye.

Balachandra was the first to recover from the calamity. He stuttered something and rushed into the vegetable market to the left.

Had anyone seen a runaway horse? He asked people immersed in shopping bags, change and vegetables. No one had noticed anything. And Balachandra Parab ran back to the statue as if he had suddenly remembered something.

"Stay right here," he told the women and those left behind from the band. Balachandra's wife tittered along with the rest of them. She knew exactly why

her husband had taken on this mammoth exercise. It was out of pure spite. Just to drive home the fact that her father had not engaged a horse at their wedding.

She laughed quietly to herself. Balachandra Parab didn't wait to glare at his wife. "Dagadu! ... Dagadu! ..." he shouted as he ran in and out of the vegetable market.

Soon he was on Goshala Road. The grim question before him was where to look for the horse. If it were found, Dagadu would be on it. Or should he look for Dagadu and not for a horse with a rider?

Eager helpers peered into the ditches on either side of the road. Perhaps Dagadu was lying there.

A school had been let off in Goshala Road. Balachandra stopped the children who stood perplexed, looking for a way to cross the road. He asked, "Did you see a horse? Did you see a horse?" even as another question nagged him. Where was that rogue, Gulama, the fellow who had brought the horse? Must have gone looking for the horse, he decided after a little pause. After all, he should be more anxious about the animal than anyone else.

Balachandra then looked only for his brother. He got into a rickshaw and roamed the different roads and alleys. He stopped every now and then. Was that a horse? No, just baskets. And that? Was that Dagadu standing by the side of the road?

Balachandra felt muddled. His eyes also kept darting to the meter and, as soon as it registered sixteen rupees, he stopped the rickshaw. He looked around him. He was far from the suburbs, near some kind of a playground.

And Gulama? Where was he?

As soon as the horse neighed and took off, Gulama had sprinted to the station and taken a train to VT. Gulama, of course, was the boy who had brought the horse, but the horse wasn't his. It belonged to Bhanumati's father — Bhanumati, whom he loved secretly, and who inspired in him a deep, deep love with which he struggled desperately.

Gulama worked in a grocer's shop in

Kalava. One day as he was packing some groceries, he had caught sight of the girl who lived in the stable-like house across the street. Instantly, he fell madly in love with her arms. He watched the way she swung them as she hung the clothes to dry. Gulama promptly became a *gulam* (slave)!

He found out that her father's sole business was horses. He was supposed to have been a *tongawalla* (horse-carriage driver) long ago. He owned four or five *tongas* now. He would send the horses and *gaadis* (cars) to Juhu beach for children to ride on during the holiday season.

In the house which looked like a stable, which had nothing but tongas, horse-dung, horse-tails, horse-feed and horse-gram, Bhanumati too had noticed Gulama. She would smile at him and disappear. She teased him using her swan-like eyes.

One day — who knows why — Gulama went up to her father and said openly, "I would like Bhanumati's hand in marriage."

Her father offered his own hand

instead, and with such sharpness that Gulama almost died of the insult. But not for nothing had Gulama acquired (from Hindi films) an unshakable faith in the victory of true love. He didn't give up watching Bhanumati's arms as he packed groceries. He shot her angry, stubborn glances of love...

Then one fine day, when this play-acting had got a trifle out of hand, Bhanumati stopped looking at him altogether. Gulama was not sure whether he was fed up or angry.

He began to spend his time with the *tongawallas* at the bus stand in Thane. It was in the midst of some idle chatter there that he heard Balachandra Parab haggling for a horse for his brother's wedding. And Gulama was suddenly filled with a strange bravado.

"Give me as much as you can afford. I shall bring you a horse early in the morning," he promised recklessly. "But I can't decorate it and all that."

The next day he got up at the crack of dawn. He untethered a horse from the stable that belonged to Bhanumati's father and walked it all the way to Mulund to present himself at Balachandra Parab's house.

Balachandra's neighbors came out in full force, eager to decorate the horse. But the horse was in a temper. Finally, they gave up and hoisted the decked-up bridegroom on to the horse, with the help of a stool.

Dagadu Parab was terrified. When he saw the horse, which seemed to have jumped out of a film poster right at his doorstep, he forgot that he was the bridegroom. Surely his life would end if the horse merely shook its head?

By the time the procession started, he had broken into a sweat. Why on earth was he born as a younger brother to this elder brother? As soon as the band struck its first notes, the horse jumped ever so lightly. And Dagadu's back began hurting. Dagadu tried to soothe his pain... but the horse bucked again and again. Why, oh why had he been born a human being, lamented Dagadu, looking enviously at Gulama who walked beside him nonchalantly.

Gulama had wanted to get away from the marriage procession as quick-

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ly as possible... But as they were nearing Shivaji's statue, and just as Gulama finished the drink, the horse escaped!

Gulama took off too, right away. He looked neither this way nor that as he ran to the station. At last, safely seated in the train, he did not forget to curse Bhanumati and her father with total destruction. When Bhanumati's father woke up at eight in the morning and discovered what had happened, he was filled with rage. He sent some of his tongas to the Kalava-Thane area to look for the horse.

Bhanumati felt an overwhelming feeling of exuberance. She sang loudly as she bathed, while her father hastened to the police station to make a complaint. And there they asked him, "What color is the horse?"

"It's the color of a horse," he said, testily. What a stupid question!

Meanwhile, an acquaintance saw Balachandra Parab walking anxiously across the sunny playground. He naively asked, "You? Here? It was your brother's wedding today, wasn't it..." and narrowly escaped being beaten up!

Balachandra walked on, cursing his luck. If the horse and Dagadu had not run away, the wedding would be taking place right now. He considered going to the police station. But the thought of paying for the license for the wedding mandapa, and all the other usual payments that had to be made to the police made him weak.

The wedding mandapa, his township, and his tenement seemed far away. Suddenly a thought struck him. What if Dagadu had got back to the mandapa? He reached the mandapa around two in the afternoon. Many people still waited. Some women had fallen asleep where they sat. Members of the band and those who had come to hear them were walking in and out of the kitchen wearing toothy smiles.

Around three o'clock, Balachandra stood up suddenly. "It's all God's will. What has to happen will happen," he said, and ordered that lunch be served.

The hungry gathering attacked the food. Balachandra absent-mindedly ate a *jalebi* (a sweetmeat) his wife forced on him. But his heart pained when he

had to pay the full amount to the band which had played only two songs. Yet he managed to count the notes as he handed them over, making sure there were people around him, watching.

Then it was the turn of the man with the speakers. He wanted to know if he had to stay till the evening, and Balachandra shouted, "Go if you want to!" He stomped towards the first chair and sat down. Soon he was nodding sleepily. What had happened to the horse and the bridegroom?

That horse had been in a circus for a while. It had also taken part in a film shooting for a few months. Its experiences were far from ordinary. Who knew what memories of the circus were raked up in the horse's mind when the motorcycle stuttered? It had reared excitedly and then galloped away. After all the nonsense that had begun early that morning, the sudden noise was as much as it could take. Galloping friskily, it reached Rajaji Road, turned on to Jhaver Road, and ran towards Goshala Road.

On its back, Dagadu swung like a pendant. He had clutched the horse in a close embrace, and had shut his eyes with such resolve that he forgot he had not fallen off yet. Ah, what a miracle! He gave a weird chuckle. Children from the schools on Goshala Road crowded around and shouted "Ai!" Even that did not affect him. His turban fell off, but he rode on, not even looking at the children who had picked it up and were racing behind the horse.

The horse turned and ran through the large playing fields of St Pais, among cows and a few cricket pitches, jumped over a small wall, hit Agra Road, cantered through the small area by the petrol bunk, and ran amid large vehicles, trucks and double-deckers. People in buses craned their necks to peer at the bridegroom who had lost his turban. The horse began prancing among the vehicles.

At that exact moment, something magical happened. Dagadu became one with the horse. He experienced a strange lightness. His job at the mill, his brother's bullying, the bride with buckteeth, his useless daily activities

— he seemed to kick them all firmly as he held on to the horse's neck. For a moment, he was Shivaji climbing Raigarh Fort! The horse was racing along the highway, past the octroi post, jumping signals, racing towards a destination only it knew.

It ran like that for quite some time, turned off the highway, went over familiar by-lanes, entered a suburb, panting hard, slipped into a very narrow alley, and finally came to a stop at the courtyard of a stable-like house.

Some men came running out of the house on hearing them arrive. They got Dagadu down, all worn out and hanging loosely to the reins. They undid his brocaded buttons, fanned him and laid him down on a *charpai* (straw mat).

A girl with a pot of water appeared, and stood before his floating eyes. As he gulped down the water noisily, she disappeared, singing softly to herself. Without too many words, and within two minutes flat, Bhanumati's father accepted this readymade bridegroom, who had brought the horse back, as his son-in-law.

Many months later, someone brought the news to Balachandra Parab: Dagadu was giving rides to children in a beautiful tonga at Juhu Beach. That evening, Balachandra Parab took his wife and children, traveled by train and changed two buses to reach Juhu.

What a sea of people! How many tongas, camels, children, balloons!

Balachandra wandered around till his legs ached. He bought his wife and children packets of chana and wandered off again before coming back tired. There was no sign of either Dagadu or his tonga.

Trying hard not to sound too gleeful, his wife mumbled, "What? Didn't you find him? If you had, we could have asked him to pay back at least what we spent on the mandapa and the wedding lunch."

"What nonsense you speak!" Balachandra burst out angrily, though his gaze was quite mournful as he stared at the sea. "What I did for my brother was the least anyone could do as an elder brother."

## Taare Zameen Par is India's entry to the Oscars




**A**ctor Aamir Khan's debut directorial film 'Taare Zameen Par', a story of an eight-year-old dyslexic child, was selected as India's entry to the foreign language category for Oscars at the 81st Annual Academy awards. **Filmmaker** Suneel Darshan, who headed the Film Federation of India jury to select the entry film, announced the decision, in Mumbai on

September 19. Khan expressed his happiness over the film being selected. "It is a film that is extremely close to my heart. It first sensitized me as a parent and as a person and then went on to have the same effect on the audiences in India and across the globe," said Aamir. "I hope that it has an equally strong impact on the members of the academy as well," Aamir added. 'Taare Zameen Par', written by Amole Gupte, was released in 2007 and has received critical and box-office acclaim. This will be Aamir's second outing at the Oscars. His first home

production 'Lagaan' reached the final nomination list of the foreign film category in 2001 but lost out to Bosnian entry 'No Man's Land'.

The awards ceremony will be held on February 22, 2009. Darshan said the committee members were unanimous in their decision to chose 'Taare Zameen Par'.

Aamir Khan said he is "better prepared" for the Oscars. "I will be better prepared this time. I think it is to my advantage... people know about my previous movies," Aamir told reporters in Mumbai. 

## 'Rock On' ranks 13 on international music chart

**T**he popularity of 'Rock On' climbed a notch higher as its music album stood 13th during the first week's iTunes US World Music page of September.



The film's music album, charged at \$8.91, followed Californian reggae band's 'Rebellion' that is ranked 12. "The music of 'Rock On' is catching on very well. This is the first time an Indian album has reached so high on iTunes," Kulmeet Makkar, CEO, Big Music and Home Entertainment, said.

The film, released on August 29, has

been widely lauded for its robust rock soundtrack created by composer trio Shankar-Ehsaan-Loy. Its songs 'Pichhle saat dino mein', 'Rock on', 'Socha hai' and 'Sindbad the sailor' are being hummed by youngsters galore. The fact that it is now among the top 15 albums on iTunes indicates the popularity of the film's music beyond Indian shores. "The music of 'Rock On' is not typically Indian. It is rock, which is a world genre and it also has a big youth connect," Makkar said. 

## Kamal Haasan to star in Walt Disney film



**T**amil superstar Kamal Haasan is set to star in an action thriller '19 Steps', to be produced in collaboration with Walt Disney. The film will be made with a budget of \$50 million. It will be directed by Bharat Bala who shot to fame with music maestro A.R. Rahman's albums 'Vande Mataram' and 'Jana Gana Mana'.

'19 Steps' will go on the floors in mid-2009 after Kamal completes his film 'Marmayogi', which is another Hollywood co-production, said a publicist.

The movie also stars Japanese star Tadanobu Asano, who is known for his Samurai roles in 'Gohatto' (1999) and 'Zatoichi' (2003).

In '19 Steps', Asano plays a blood thirsty Samurai Kenji seeking to conquer the ancient Indian martial art of Kalaripayattu (precursor of Karate). He learns the tough 18 steps and masters the 19th from an Indian guru played by Kamal, said the publicist.

The movie is being scripted by award-winning Malayalam novelist M.T. Vasudevan Nair.

## Reliance to invest \$550 mn for studio with Spielberg

**I**n a unique Bollywood-Hollywood partnership, the Reliance Anil Dhirubhai Ambani Group will invest \$550 million to form a new venture with Steven Spielberg, allowing him to break away from his studio, DreamWorks, now owned by Viacom's Paramount Pictures, sources said.

The Indian group will invest the money as equity, while another \$750 million or so will come as debt from leading investment banker JP Morgan Chase for the new studio, whose name has not been divulged yet, the sources added.

DreamWorks was formed with much fanfare in 1994. But after an uneven run, it was sold to Viacom's Paramount in 2006 for \$1.6 billion. Since then, Spielberg and his team

were eager to part ways with Paramount.

"The deal has been sealed," said a source, even as Paramount said it would not delay matters for Spielberg, who has to his credit movies like 'Jaws', 'Star Wars' and 'Jurassic Park', and his associates.

"To facilitate a timely and smooth transition, Paramount has waived certain provisions from the original deal to clear the way for the DreamWorks principals and their employees to join their new company without delay," the studio said.

"Steven is one of the world's great storytellers and a legend in the motion picture business. It has been an honor working closely with him and the DreamWorks team over the last three years," the studio added.



# ORCHHA: A medieval legacy in stone

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**O**rchha is a grandeur captured in stone, frozen in time and an enduring legacy that has weathered time and the elements. In this medieval city in Madhya Pradesh, the hand of time has rested lightly and the palaces and temples built by its Bundela rulers in the 16th and 17th centuries retain much of their pristine perfection. Orchha was founded in the 16th century by the Bundela Rajput chieftain, Rudra Pratap, who chose this stretch of land along the Betwa river as an ideal site for his capital.

Of the succeeding rulers, the most notable was Raja Bir Singh Ju Deo who built the exquisite Jehangir Mahal, a tiered palace crowned by graceful *chhatris*. From here the view of soaring temple spires and cenotaphs is spectacular. Complementing the noble proportions of their exteriors are interiors, which represent the finest flowering of the Bundela school of painting. The dynasty ruled over the area between the Yamuna and Narmada rivers. Garhkurar, once capital of the Bundela

Rajas, fell to the Tughluqs just as that dynasty was weakening. Into the vacuum that they left, the Bundelas again expanded, moving their base to Orchha (meaning hidden).

### Major attractions:

**Jehangir Mahal:** Built by Raja Bir Singh Ju Deo in the 17th century to commemorate the visit of Emperor Jehangir to Orchha. Its strong lines are counterbalanced by delicate *chhatris* and trellis work, the whole conveying an effect of extraordinary richness.

**Raj Mahal:** This palace was built in the 17th century by Madhukar Shah, the deeply religious predecessor of Bir Singh Ju Deo. The plain exteriors, crowned by *chhatris*, give way to interiors with exquisite murals, boldly colourful on a variety of religious themes.

**Rai Parveen Mahal:** Poetess and musician, Rai Parveen was the beautiful paramour of Raja Indramani (1672-76) and was sent to Delhi on the orders of the Emperor Akbar, who was captivated by her. The palace built for her is a low, two-storeyed brick

structure designed to match the height of the trees in the surrounding, beautifully landscaped gardens of Anand Mahal, with its octagonal flower beds and elaborate water supply system.

**Chaturbhuj Temple:** Built upon a massive stone platform and reached by a steep flight of steps, the temple was specially constructed to enshrine the image of Rama that remained in the Ram Raja Temple.

**Laxminarayan Temple:** A flagstone path links this temple with the Ram Raja Temple. The style is an interesting synthesis of fort and temple moulds.

**Ram Raja Temple:** With its soaring spires and palatial architecture, this temple is surely one of the most unusual in India. It is also the only place in the country where Rama is worshipped as a King.

**Dinman Hardaul's Palace:** Hardaul was the son of Bir Singh Ju Deo, and died to prove his innocence to his elder brother Jhujhar who cast doubts on his relationship with his (Jhujhar's) consort. This prince, after his martyrdom, was worshipped like a god. ■

## ■ THE FESTIVAL OF LIGHTS



Deepavali or the 'Festival of Lights' is one of India's important festivals usually celebrated in the month of October. The festival marks the victory of good over evil, with the lamps signifying expulsion of darkness and spiritual enlightenment.

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