

# DEVELOP INDIA

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## PRESIDENT APPROVES NOMINATION OF ANU AGA, REKHA & SACHIN TO RAJYA SABHA

President Mrs Pratibha Devisingh Patil has approved nomination of social worker Anu Aga, veteran cine actor Rekha and Battering Maestro Sachin Tendulkar to Rajya Sabha. 39-year-old Tendulkar, who has brought many a laurels to the country through his exploits in the game and Rekha, known for her brilliant and emotional portrayals in Hindi cinema in the 80s, will become members of Parliament under a provision of the constitution that allows the President to nominate 12 members to the Upper House.

**Anu Aga** is an Indian businesswoman and social worker, who led Thermax Ltd., the Rs 3246-crore energy and environment engineering major, as its chairperson 1996-2004. She had figured among the eight richest Indian women, and in 2007 was part of 40 Richest Indians by net worth according to Forbes magazine. After retiring from Thermax, she took to social work, and 2010 was awarded the Padma Shri for Social Work by the Government of India. She is currently Chairperson of Teach For India. She was nominated to Rajya Sabha, the Upper House of Indian Parliament on April 26, 2012, by President Pratibha Patil.

**Thermax Ltd.** is an Indian energy and environment engineering company based in India; and in Britain. It manufactures boilers, vapour absorption machines, offers water and waste solutions and installs captive power projects. Thermax is also a historic brand name of boilers, and the name of a former toughened-glass company. Anu Aga was the chairperson of the company 1996-2004, till she handed over the reins to her daughter, Meher Pudumjee, and figured amongst the eight richest Indian women, and in 2007 was part of 40 Richest Indians by net worth according to Forbes magazine, in 2009 she was at number 55, and continues to be a board member.

**Sachin Ramesh Tendulkar** is an Indian cricketer widely considered by many to be one of the greatest batsmen of all time. He is the leading run-scorer and century maker in Test and one-day international cricket. He is the first player to score a double century in ODI cricket. In 2002, just 12 years into his career, Wisden ranked him the second greatest Test batsman of all time, behind Donald Bradman, and the second greatest one-day-international (ODI) batsman of all time, behind Viv Richards. Tendulkar was a part of the 2011 Cricket World Cup winning Indian team in the later part of his career, his first such win in six World Cup appearances for India.

**Bhanurekha Ganesan**, better known by her stage name Rekha, is an Indian actress who has appeared in Hindi films. Noted for her versatility and acknowledged as one of the finest actresses in Hindi cinema, Rekha started her career in 1966 as a child actress in the Telugu movie Rangula Ratnam, though her film debut as a lead happened four years later with Sawan Bhadon (1970). Despite the success of several of her early films, she was often panned for her looks and it was not until the

mid-to-late 1970s that she got recognition as an actress. Since the late 1970s, after undertaking a physical transformation, she has been featured as a sex symbol in the Indian media. Rekha has acted in over 180 films in a career spanning over 40 years. Throughout her career, she has often played strong female characters and, apart from mainstream cinema, appeared in arthouse films, known in India as parallel cinema. She has won three Filmfare Awards, two for Best Actress and one for Best Supporting Actress, for her roles in Khubsoorat (1980), Khoon Bhari Maang (1988) and Khiladiyon Ka Khiladi (1996), respectively. Her portrayal of a classical courtesan in Umrao Jaan (1981) won her the National Film Award for Best Actress. Though her career has gone through certain periods of decline, she has reinvented herself numerous times and has been credited for her ability to sustain her status.



## RISAT-1 SATELLITE

## INDIA SUCCESSFULLY LAUNCHES

India successfully launched Radar Imaging Satellite, Risat-1 from Sriharikota in Andhra Pradesh on April 26, 2012 and joined a select group of nations having such an advanced technology. The US, Canada and Europe are having such technology. The indigenously built Risat-1, with a life span of five years, will be used for disaster prediction and agriculture forestry. The high resolution pictures and microwave imaging from Risat-1 could also be used for defence purposes as it can look through the clouds and fog. The ISRO-made Risat-1 is the heaviest luggage so far ferried by a PSLV since 1993. ISRO chairman K. Radhakrishnan said after the launch that PSLV-C19 mission is a grand success and this is the 20th successive successful flight of PSLV. The Prime Minister Dr. Manmohan Singh hailed the successful launch of PSLV carrying RISAT-1 and congratulated the scientists associated with the project. PSLV-C19 will inject RISAT-1 satellite into an orbit of 480 km altitude at an inclination of 97.552°. The satellite will be put in its final orbital configuration at 536 km altitude using thrusters onboard the satellite.

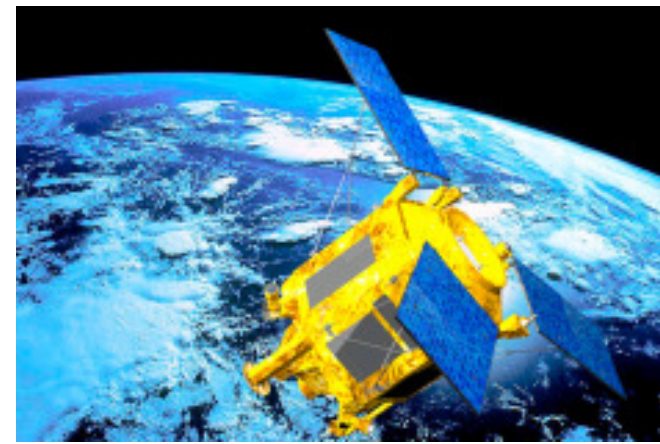


## INSAT-2E Completes 13 years Successfully

After 13 years of satisfactory service, INSAT-2E, the last of the five satellites in the INSAT-2 series, has successfully completed its mission life. INSAT-2E was built with a planned mission life of 12 years and continued to function beyond its mission life. Launched on April 3, 1999 by the European Ariane-5 launcher, INSAT-2E was positioned at 830 East longitude in the geostationary orbit. INSAT-2E carried 14 C-band and 5 lower extended C-band transponders for various communication services. The satellite also carried a Very High Resolution Radiometer and a Charge Coupled Device camera for meteorological observation. It may be recalled that 11 communication transponders of 36 MHz bandwidth onboard INSAT-2E satellite were leased to International Telecommunication Satellite Organisation (INTELSAT), the first such lease from an Indian satellite. INSAT-2E was controlled from Master Control Facility at Hassan.



## PSLV to Launch French Remote Sensing Satellite - SPOT - 6



A commercial Launch Services Agreement between Antrix Corporation Limited (ANTRIX), the commercial arm of ISRO; and ASTRIUM SAS, a Company under EADS, France; has been signed recently. Under this agreement, an advanced Remote Sensing satellite - SPOT -6, weighing nearly 800 kg, built by ASTRIUM SAS, will be launched on-board ISRO's Polar Satellite Launch Vehicle (PSLV), during the second half of 2012. Along with SPOT - 6 satellite, the PSLV, in its core alone configuration, will also carry other co-passenger payloads. This Launch Services Agreement signed between ANTRIX and ASTRIUM is a part of the Long Term Agreement signed between the two agencies in September 2008. It may be recalled that in November 2010, under a commercial contract between ANTRIX and ASTRIUM, an advanced communication satellite HYLAS was successfully built by ISRO and ASTRIUM together for a EUROPEAN customer. In the coming days, further collaboration possibilities between ANTRIX/ISRO and ASTRIUM would be explored.

## INS TEG

### inducted into Navy

State of the art Naval warship INS TEG has been formally inducted into the Indian Navy on April 27, 2012. The warship was commissioned by Southern Naval Commander-in-Chief Vice Admiral KN Sushil at a ceremony at Kaliningrad in Russia. TEG was laid down on 27 July 2007, launched on 27 November 2009, and following post-construction work began sea trials in the Baltic Sea on 1 September 2011, and is expected to be commissioned by 2012. During TEG's sea trials in mid-October, her port-side

turbine was damaged, forcing a two-week delay in her trials schedule while repairs were made. TEG completed her sea trials in early December 2011, leaving only acceptance trials before her delivery to the Indian Navy in April 2012. These trials were completed in early February 2012. TEG commissioned on April 27, 2012 at the Yantar shipyard at Kaliningrad in Russia. INS TEG (F45) is a Talwar class frigate constructed for the Indian Navy. She was built by the Yantar shipyard in Kaliningrad, Russia.



## UNICEF GLOBAL REPORT CARD

India's demographic dividend might get negated with about half of adolescent girls reported unhealthy. According to the UNICEF Global Report Card on Adolescents 2012, 47 per cent of adolescent girls aged 15-19 in India were underweight with a body mass index of less than the prescribed level of 18.5. The South Asian region as a whole fared badly on the body mass index level with Bangladesh and Nepal having 35 per cent and 26 per cent underweight adolescent girls respectively. The global report listed India as a prime destination for adolescent girls to bear children. It found out that 22 percent of women aged 20-24 years gave birth before the age of 18 in India.

The UNICEF report said India, Bangladesh, and Niger accounted for one in every three of the world's adolescent births. Forty percent of women in Bangladesh conceived before the age of 18 years followed by Nepal at 23 percent and Pakistan at 10 percent respectively. **Highlighting the causes**, Dr. Meenakshi Banerjee, consultant gynecology at Max Hospital, Saket said, "Poverty and lack of proper education are the main reasons behind such situation. Some communities in India still go for early marriages which results in early pregnancy." This, she added, resulted in further worsening of the health of the adolescents. Globally, each year around 16 million girls aged 15-19 gave birth, accounting for around 11 per cent of all births. Countries of Latin America and the Caribbean and sub-Saharan Africa had the highest proportion of adolescent births. In both these regions, around one in five babies was born to an adolescent mother.



On violence against women as wives, the UNICEF report found out that 57 percent of adolescent males in India supported wife beating while 53 percent of female adolescents too supported wife beating.

Expressing deep concern over the issue, Kulsoom Rashid, project associate at Jagori, a woman centric NGO said, "The patriarchal system also does not allow girls to revolt and resist. They know that they are born to get subjugated. They are the sufferers of the lot and so the boys take undue advantage of the situation."

A majority of Indian boys and girls justify wife beating in the households, a survey by the United Nations Children's Fund (Unicef) has found. The findings of the survey were shocking as not just men, but even adolescents in the age group of 15 to 19 feel that wife beating is justified.

The Unicef's "Global Report Card on Adolescents 2012" says that 57 per cent of adolescent boys in the country think a husband is justified in beating his wife.

Moreover, over half of the Indian adolescent girls -- around 53 per cent of them -- think that a husband is justified in beating his wife.

In comparison, 41 per cent women in Bangladesh and 54 per cent in Sri Lanka harbour a similar feeling. In Nepal, however, the prevalence of both men and women justifying domestic violence is inordinately high at 88 per cent and 80 per cent respectively.

According to the report, societal attitudes that convey acceptance or justification of domestic violence are making girls and women more vulnerable to abuse.

The report explains that because of reporting bias, this might be an under estimation of the actual size of the problem in several countries.



# Current Events

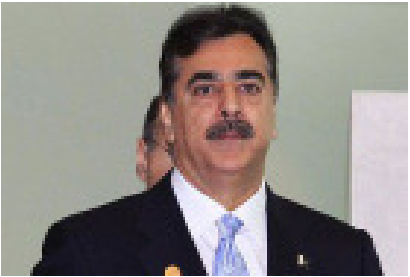
## Cabinet approves sexual offences Bill

The Union Cabinet on April 26, 2012 approved cleared a path-breaking bill dealing exclusively with sexual offences against children. The 'sexual offences against children bill' seeks to make sexual intercourse or 'contact with sexual intent' with a child below 18 years - illegal. The bill proposes stringent provisions ranging from three years' imprisonment to life term for a person who commits sexual harassment, sexual assault, penetrative sexual assault or aggravated penetrative sexual assault. The bill recommends 10 years of imprisonment extendable to life imprisonment and fine for aggravated sexual assault. It will be treated as an aggravated offence where the child victim is below 12 years or has mental or physical disability or the sexual offence causes grievous hurt or injury to the child with long term adverse effect on the child's mind and body. The bill mooted by the Ministry of Women and Child Development (WCD) is in response to the increasing incidents of sexual offences against children. However, these are dogged by a low conviction rate.

## India's financial system is strong: RBI

A day after global credit rating agency, S&P cut India's outlook to negative, the Reserve Bank of India on April 26, 2012 said the country's financial system is strong, and sometimes these ratings are discounted by the markets. RBI Deputy Governor K. C. Chakrabarty also said the Reserve Bank will intervene in the forex market only if there is high volatility in the currency market, not just because of the ratings. He said the central bank will come out with its next financial stability report in June, which showcases the country's financial strength, and it will reflect the position of the economy.

## Pak PM convicted in contempt case; given a symbolic sentence



Pakistan's Supreme Court on April 26, 2012 convicted Prime Minister Yousuf Raza Gilani for contempt of court for refusing to revive graft cases against President Asif Ali Zardari and sentenced him to a symbolic "till the rising of the court", sparing him a jail term. During proceedings in courtroom number 4 that lasted less than 10 minutes, the seven-judge bench headed by Justice Nasir-ul-Mulk

announced the verdict and said Gilani's sentence would last "till the rising of the court" or till the completion of the hearing. The judges left the court immediately after announcing the verdict, effectively ending 56-year-old Gilani's sentence. However, legal experts were divided on whether Gilani's conviction would lead to his disqualification. They said the court's detailed order would provide clarity in this regard. Emerging from the court, Gilani told the media: "We had sought justice. The decision was not appropriate". The maximum sentence that could have been given to Gilani in this case was six months. Earlier, Gilani drove in a small motorcade to the Supreme Court complex, where members of his council of ministers were waiting for him. The premier then walked towards the building flanked by his son Abdul Qadeer Gilani and Interior Minister Rehman Malik as his supporters showered rose petals on him. He stopped at the door of the building and waved to his supporters before going inside. The proceedings in the packed courtroom began at around 9.30 am. After the judges entered the room, Gilani walked and stood at the rostrum with Law Minister Farooq Naek and his lawyer Aitzaz Ahsan. The government put in place strict security arrangements for Gilani's third appearance in the Supreme Court in the contempt case. Helicopters mounted aerial surveillance were also put in place while over 2,000 security personnel were deployed in the "Red Zone" where the apex court and parliament is located. The Supreme Court has been pushing the government to reopen cases of money laundering against President Zardari in Switzerland since December 2009, when it struck down a graft amnesty (National Reconciliation Ordinance) issued by former military ruler Pervez Musharraf. The government has refused to act, saying the President enjoys immunity in Pakistan and abroad.

## India launches first indigenously developed anti-Malarial drug Synriam

In a major breakthrough in the fight against Malaria, India has unveiled the first indigenously developed anti-Malarial drug Synriam. Launching the drug at a function in New Delhi on April 23, 2012, Health and Family Welfare Minister Ghulam Nabi Azad said that it is land mark achievement in the entire pharmaceutical sector. Mr Azad said the next generation drug is safe and there will be no problem in its production of in sufficient quantity. Mr Azad urged the manufacturing company to keep the price of the drug at affordable levels so that poor and needy people are able to access the drug in remote and backward districts of the country. The minister said the country's pharmaceutical industry is now the third largest in the world in terms of volume and 14th in terms of value, maintaining a growth rate of 12 to 14 per cent annually. Mr Azad said India has emerged as a major leader in world drug industry as it supplies drugs to about 211 countries apart from supplying vaccines to over 150 countries. Talking to reporters on the

sidelines of the function, Mr Azad said that the government will this year implement the Clinical Establishment Regulation Act to prevent undesired operations and tests in hospitals. Speaking on the occasions, Minister for Science and Technology Vilasrao Deshmukh stressed the need to introduce more schemes for affordable health care in the country. Maoists release Odisha MLA after 34 days of captivity In Odisha, Maoist released Biju Janata Dal, BJD MLA Jhina Hikaka on Thursday. He was handed over to his wife Koushalya and lawyer Nihar Ranjan Patnaik at Balipeta in Maoist-hit Narayanpatna of Koraput district. The Maoists agreed to release the MLA with the condition that he would resign as an MLA and disassociate himself with all the activities of his party, the ruling Biju Janata Dal. The MLA from Laxmipur in tribal-dominated Koraput district was kept in the captivity of the Maoists for 34 days.

## Biometric Smart Card to be provided to small tea growers in Assam



In Assam, the Tea Board of India has prepared an ambitious scheme to provide Biometric Smart Card to about eighty thousand small tea growers. Executive Director of Tea Board Rakesh Saini told newspersons in Guwahati on April 24, 2012, he said the scheme is to be launched at Tezpur on 28th of this month. He said it sort out the problems of registration of small tea growers besides providing them financial assistance and sell tea leaf at Tea Board's recommended price. Assam produces more than 50 per cent of the country's total tea production.

## USIBC for India-specific eco pact; suggests \$50 bn fund

To enhance business ties between the two countries, industry body USIBC has proposed to the White House an India-specific Economic Cooperation Agreement and the setting up of a USD 50 bn sovereign debt fund in collaboration with India. The Agreement, its proponents have argued, would be unprecedented in terms of the economic cooperation for the US with any countries so far — something on the lines of the nuclear deal that changed strategic relations between India and America. These suggestions are part of five-point proposals that USIBC has put forth to the Obama Administration, which it says are achievable goals in mid-term and will reinvigorate the bilateral economic ties. Topping the list is a USD 50 billion sovereign debt fund, with collaboration between India and the US; a unique

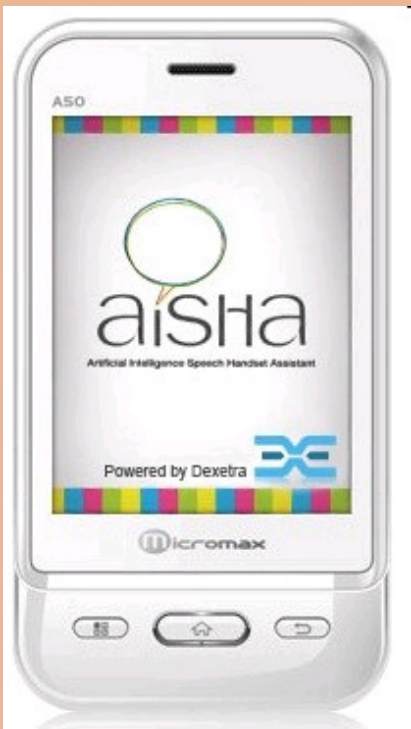
NASDAQ-like exchange in Bangalore and massive collaboration in energy sector including shale gas technology to help India address its energy challenges. The brief contours of these five-point, mid-term achievable were recently communicated in a confidential letter to Mike Froman, Deputy assistant to the President and Deputy National Security Adviser for International Economic Affairs, by Harold "Terry" McGraw II — the outgoing Chairman of US India Business Council (USIBC). PTI has obtained a copy of the letter dated 26<sup>th</sup> March. USIBC has entrusted Peterson Institute for International Economics, a Washington-based think tank to prepare an initial report on the proposed India-US Economic Cooperation Agreement. A top Peterson Institute official last week told the visiting Finance Minister Pranab Mukherjee that the think-tank is preparing a report on this with USIBC and would like to submit it to him once it is complete. "Moving forward on having the private sector activate studies on both sides to flesh-out the contours of an Economic Cooperation Arrangement is another area that would excite business involvement," McGraw told Froman. These proposals, sources said, have been developed by USIBC following a series of brain-storming session of leaders from India and the US. For instance, USIBC Board member Sanjay Nayar has proposed collaboration between the two countries in issuing a sizable USD 50 billion sovereign bond offering for infrastructure development. It could be administered by someone of impeccable reputation like Deepak Parekh of HDFC. Similarly, Kiran Mazumdar Shaw suggested as part of an earlier USIBC Life Sciences Mission in February the conception of a NASDAQ-like exchange in India, which would value Intellectual Property and Innovation. This, McGraw argued, would check some of the back-sliding they have seen underway regarding compulsory licensing and price controls of the pharmaceutical industry. Such an "Innovation Exchange" would also spur R&D investment, hopefully going a long-way toward solving India's quest for indigenous high technology manufacturing, he said. Referring to his recent visit to India, McGraw said that shale gas technology collaboration and robust collaboration in hydrocarbon development and clean coal, as well as renewable energy cooperation are all areas that sparked enthusiasm between corporate sector of the two nations. Since the availability of funding will be a key enabler for infrastructure development, one of its recommendations is to work to ease the current restriction on long-term investors such as insurance companies and pension funds. "We also recommend encouraging Indian banks to refinance their infrastructure loans through the debt markets. "These actions in the near term will increase liquidity and available capital in India's markets, spurring financing and growth," McGraw said.

## Oil rises above USD 104 after US supplies drop

Oil prices rose above USD 104 a barrel on Wednesday after a report showed US crude supplies unexpectedly fell, suggesting demand may be improving, and strong corporate earnings helped sentiment in financial markets. Benchmark oil for June delivery was up 65 cents to USD 104.20 a barrel by midafternoon European time in electronic trading on the New York Mercantile Exchange. The contract rose 44 cents to settle at USD 103.55 in New York on Tuesday. Brent crude for June delivery was down 50 cents at USD 117.66 per barrel in London. The American Petroleum Institute said last evening that crude inventories fell 1.0 million barrels last week while analysts surveyed by Platts, the energy information arm of McGraw-Hill Cos., had predicted an increase of 1.5 million barrels. Crude supplies have jumped more than analyst forecasts for the previous four weeks. The Energy Department's Energy Information Administration reports its weekly supply data this evening. "If the Energy Department corroborates, this would be a bullish number," energy trader and consultant The Schork Group said in a report. Inventories of gasoline fell 3.6 million barrels last week while distil-

## Micromax's Superfone A50 Ninja enters India with AISHA voice assistant, forgets its shuriken

Hoping to compete with the Siris of the world, Micromax has announced its new Superfone A50 Ninja alongside a novel feature dubbed AISHA -- which is short for Artificial Intelligence Speech Handset Assistant. Similar to Cupertino's personal secretary, AISHA vows to help folks with every-day elements such as making calls, setting up calendar events and even reporting what the weather looks like. Much to our disappointment, however, the A50 Ninja runs a not-so-new flavor of Android -- Gingerbread to be exact -- and Micromax left out any mention of Android 4.0.



On the specs front, the dual-SIM Superfone sports a 3.1-inch display (mum's the word on the resolution), a two-megapixel shooter, Bluetooth 2.0 capabilities and an unspecified 650MHz processor. All in all, thanks to its 4,999 rupees (around \$95) budget price, we can't imagine you'd complain too much. Be sure to hit up the Micromax link below if you're interested in grabbing one of these.

lates also tumbled 3.6 million barrels, the API said. Upbeat earnings reports from companies like Apple Inc. helped equities rise, improving investor sentiment across financial markets. Delta, Boeing and Caterpillar also beat expectations, suggesting consumer demand is resilient.

## India all set to develop reusable rockets: DRDO chief

After the successful launch of Agni-5 Inter-Continental Ballistic Missile (ICBM), India is all set to develop reusable rockets which will combine the technologies of both ballistic and cruise missiles. As part of plans to develop reusable ballistic missiles, Defence Research and Development Organisation will test indigenously developed scram jet engine next year, DRDO Chief V K Saraswat said in an interview to Doordarshan. "We have propulsion technology, we have re-entry technologies, we have the technology which can take a re-entry system which will deliver a payload and have yet another re-entry system which will bring the missile back when it re-enters the atmosphere on its return journey," he said. "We have demonstrated the performance of a scram jet engine operating at Mach six speed (six times the speed of sound)," he said. On the range of Agni-5 missile which was successfully test-fired recently off Odisha coast, the DRDO chief said with moderate modifications, "it can be extended to any range which is of our interest." On technological capability available with the agency, he said, "DRDO has built the necessary technologies, production infrastructure and design capability for developing a booster or a sustainer... We have the capability to develop a re-entry nose cone which can withstand higher temperature and velocity." Reacting to reports that India does not possess sufficient indigenous technology for missile guidance systems, Saraswat said Agni-5 has used a completely indigenous and high precision missile guidance system with "0.001 degrees of per hour accuracy." On criticism that DRDO sometimes does not live up to expectations, he said the agency was as good as its counterparts in advanced countries. "Light Combat Aircraft (LCA), F-18 and Eurofighter took similar number of years and cost wise they were three times more than what we have put in our LCA," he said. On development of Kaveri engine, Saraswat said it too has performed well and was, "flown an IL-76 aircraft in Russia, 55 hours of successful flight...

We are going to upgrade it so that it can be used in India's LCA Mark-II and future systems."

## Grass with Gandhi blood sold for 10,000 pounds

A pinch of soil and blood-stained blades of grass from the place where Mahatma Gandhi was assassinated in 1948 was sold on Tuesday for 10,000 pounds at an auction in London. The auction also saw many other Gandhi memorabilia going under the hammer including his iconic round-rimmed glasses that fetched far more than the estimated price. In all, the Gandhi-related items fetched over 100,000 pounds in the auction by the Shropshire-based auctioneer, Mullock's. The memorabilia included a pair of Gandhi's round-rimmed glasses, 'charkha', a 10 inch 78 rpm Columbia disc of Gandhi giving his spiritual message signed by him, and original photographs of Gandhi visiting London in 1931. Also in the collection sold were letters in English by Gandhi to Raghavan, Sgt N E R Poduwal in Rangoon, letters by Gandhi in Gujarati and a prayer book in Gujarati. The pair of Gandhi's glasses had a guide price of 10,000 pounds but sold for 34,000 pounds. Kevin Bland, financial controller at Mullock's, said the unnamed telephone bidder who bought the spectacles also spent 26,500 pounds on a wooden "charka". The same bidder bought his prayer book for 10,500 pounds. "We are not surprised that the collection sold. We were confident because there was a lot of interest in the items, but it is always a pleasure, on behalf of the vendor, to exceed the guide prices," Bland said. He said that after adding fees and VAT, the collection went for a total of 128,000 pounds. The soil and blades of grass were reported to have been collected by one P P Nambiar, who describes the samples in a provenance, and are placed in a small wooden casket containing a small glass topped box. The description of the item says: "The casket comes with a letter of provenance by P P Nambiar dated 24th September 1996, saying that the recipient: ...has today received the most sacred of all relics a fraction of the pinch of soil I collected on 30<sup>th</sup> January 1948 from the spot where the Father of our nation M K Gandhi fell to the bullets of his assassin...." Gandhi's glasses were bought in London around 1890 when he studied Law. The item is described as "corroded with age", and comes with the original felt bearing the name of H Cannam Optician 23 St Aldate Street Gloucester.

## Justice Dalveer Bhandari elected as ICJ judge

After a gap of more than two decades, India's nominee Justice Dalveer Bhandari was overwhelmingly elected as a judge of the International Court of Justice. Justice Bhandari defeated his Filipino rival in the UN General Assembly as well as the Security Council. 64-year-old Justice Bhandari, a senior Supreme Court Judge, will serve a 2012-18 term in the ICJ, which is the principal judicial organ of the United Nations based in The Hague, Netherlands. In simultaneous elections held at UN headquarters United Nations on Friday, Bhandari obtained 122 votes in the General Assembly and 13 votes in the 15-nation Security Council against his Filipino rival Justice Florentino Feliciano, who received just 58 votes in the General Assembly. An eminent legal luminary, Bhandari has been on the Supreme Court of India since 2005 and has served in the higher Indian judiciary for over two decades. Prior to that, he had a distinguished and successful career as an attorney at law for 23 years. The present vacancy at the ICJ was created by the resignation of Judge Awn Shawkat Al-Khasawneh of Jordan from the Asia-Pacific region at the end of 2011. India was last represented at the ICJ by former Supreme Court Chief Justice RS Pathak from 1988 to 1990. A statement from the Indian mission in United Nations said Bhandari's significant contributions to constitutional law, environmental law, human rights jurisprudence, gender justice, rule of law, protection of fundamental rights, protection of Intellectual Property Rights and to comparative law are widely recognized.



## Ticket to Titanic maiden voyage sold at auction

A New York auction house has sold an original ticket to the 1912 launch of the Titanic and a dinner menu from the ill-fated ocean liner, plus items recovered from the wreckage miles underwater. On the block Sunday at Bonhams were various Titanic remnants offered to mark the centennial of its sinking. The historic admission ticket fetched \$56,250, including the auction house premium. The menu, touting choices like the tongue of a castrated rooster and beef sirloin with horseradish, sold for \$31,250. Both went to private American buyers, said Gregg Dietrich, Bonhams' maritime consultant. He said one surprise at the auction was the comparatively low price paid for a telegraph that read, "We have struck an iceberg." That message — sold for \$27,500 — was sent to Titanic's sister ship, the Olympic, about three hours before the Titanic sank just days into its maiden voyage from Southampton, England, to New York. Only about 700 of the luxury liner's more than 2,200 passengers survived. One important item that did not sell is a handwritten account from the captain of the Carpathia that rescued the survivors, Dietrich said. "But interest in Titanic artifacts remains strong," he said, noting that Bonhams' Manhattan auction room was filled Sunday with about 60 people, in addition to bidders on the phone and online. He said many items went to buyers collecting Titanic artifacts for years. The most curious lot of the day, Dietrich said, sold for \$12,500: three rivets and a piece of porthole glass recovered from the wreckage in the North Atlantic near Newfoundland during expeditions starting in 1987. Bonhams could not immediately provide a total haul for Sunday's auction. The biggest sale of Titanic lore has yet to come: 5,000 artifacts with a value of hundreds of millions of dollars owned by RMS Titanic Inc. A New York auction planned for April was put on hold because of talks with various parties for the possible purchase of the collection, ranging from passengers' personal possessions and parts of the hull to china and the ship's fittings.

## Asia's largest tulip garden now opens to visitors

Asia's largest tulip garden on the banks of Dal Lake in Kashmir was thrown open to visitors on Thursday by Chief Minister Omar Abdullah. Accompanied by his mother Molly Abdullah, the Chief Minister formally opened the garden to visitors. "The impact of this

garden on tourism is evident from the fact that we have been forced to open it a week to 10 days ahead of schedule," Abdullah told reporters. He said tourists were so keen to visit the garden that they could have broken in without waiting for the inauguration. "The Tulip garden has succeeded in bringing forward the tourist season in Kashmir by two months. Our season has already begun," he said. Although the tulips are yet to reach full bloom, the floriculture department has planted 20 lakh bulbs over an area of 12 hectares with eight new varieties of the flower added this year. Formerly known as Siraj Bagh, the Indira Gandhi Memorial Tulip garden was the brainchild of then chief minister Ghulam Nabi Azad.



The garden was developed with to provide tourists with an added incentive to visit the Valley. Tulip cultivation has since been started on a commercial scale. The delicate flowers in different hues and colours are sent to markets across the country including Mumbai, Bangalore, Delhi and Hyderabad.

## Govind Narain, one of the last surviving ICS officers, dead

Govind Narain, one of the last surviving ICS officers and who was the Home Secretary during Bangladesh war, passed away in the capital, his family said on April 25, 2012. Narain, 95, a Padma Vibhushan awardee, breathed his last at his residence in Chattarpur in South Delhi last night due to old age. He had refused to be admitted in a hospital and died peacefully at home, his family said. Born on 5<sup>th</sup> May, 1916, Oxford-educated Narain joined the ICS in 1939 and went on to become country's Home Secretary and Defence Secretary. Narain, who worked under Jawaharlal Nehru, Lal Bahadur Shastri and Indira Gandhi, was the Home Secretary from 1971 to 1973 and was one of the top officers instrumental in planning the Bangladesh war and setting up of Mukti Bahini. In 1973, he was moved to the Defence Ministry as the Defence Secretary from where he retired two years later. He was appointed the Karnataka governor in 1977 and was in the Raj Bhavan till 1983. Narain is also credited for the setting up of the defence establishment and a tie up with Russia in this regard. In 1968, he was appointed Secretary, Defence Production. In the early days of his career,

Nehru had sent him to Nepal as an adviser to the King of Nepal. He is survived by his two daughters. One of his sons-in-law Yogesh Chandra retired as a senior civil servant in the rank of cabinet secretary to the government of India while his grandson Vikram Chandra is a well-known TV journalist.

## Governor condole Govind Narain's demise

Karnataka Governor H R Bhardwaj on April 25, 2012 expressed grief over the death of Govind Narain, former state Governor, at New Delhi. Bhardwaj recollected the yeoman services of Narain in his long public life and also as Governor of Karnataka and extended his condolences to the bereaved family, a communique from Raj Bhavan said.

## Assam's traditional 'Ankiya Bhaona' to get new lease of life

Assam's traditional theatre, 'Ankiya Bhaona' with its roots embedded deep in the Vaishnav monasteries or 'Satras', is set to get a new lease of life with an initiative by a state apex body to popularise it among diverse communities. Bhaona was traditionally confined to satras with performances strictly confined to those associated with these monasteries. "Earlier, Ankiya Bhaona was rarely performed outside the broad periphery of the atra, but we have realised that it is now time to walk an extra mile to build inter community bridges in Assam as an investment in social security and social capital," President of Asom Satra Mahasabha, Lilakanta Mahanta said. Mahasabha, the apex body of around 600 Satra institutions of the state, along with the Srimanta Sankar Foundation, organises an annual Bhaona festival titled 'Setubandha' or building bridges involving various ethnic tribes.



"The theatre festival is an endeavour towards integration, peace and harmony among all sections of Assamese society as ethnic groups and tribes have also expressed their desire to be a part of Vaishnav traditions and be an equal stakeholder in the state's socio-economic ethos," President of Srimanta Foundation Keshavananda Deva Goswami said. Ankiya Bhaona, apart from its artistic and aesthetic elegance, was envisaged as a medium of communication and emotional integration at varying levels by the great Vaishnav saint, Sankardeva, in 15<sup>th</sup> century, Goswami said. "Our aim now is to bridge the cultural and emotional distance growing among the different sections of the society and to unite the diverse communities through cultural assimilation," he said. Mahanta pointed out that they had initiated the process a few years ago with 25 bhaonas performed by various communities like Tiwa, Mishing, Sonowal Kachari, Bodo, Tea tribes, Karbis, Rabha, Nepali, Moran, Rajbongshi, Singpho among others. "In the earlier programmes, however, the bhaonas were performed in the original form, i.e. in the language of the plays written by Sankardeva and his main disciple Madhavdeva but for the first time in history, two plays were performed in Bodo and Mishing language this year," he said. Sangeet Natak Akademi's Sattriya Kendra Centre in Guwahati also organised a five-day Ankiya Bhaona Samorah to propagate, spread and revive the traditional Sattriya culture and heritage among the youth. "Due to changes in society and

the advent of modernism, people tend to shift to something new and forget their own culture and heritage. With this in mind, we are trying to bring back the people, particularly the youth, to their roots," SNA's Programme Officer Raju Das said. Bhaona owes its origin to the unique genre of plays, evolved by Sankardeva and his disciple Madhavdeva, and is a kind of dance-drama with songs and dialogues in Brajavali.

## World Health Day celebrated

World Health Day was observed on Saturday with this year's theme of: 'Good health adds life to years.' The day was being observed to mark the anniversary of founding of World health Organisation (WHO) in the year 1948.



The focus of the day is to how a good health throughout life can help older men and women lead full and productive lives and be a resource for their families and communities. Although health of ageing population is a big challenge for the world, for developing nations like India this problem is much more serious. Various ministries of the central government are working on long term strategies to deal with this challenge. On this occasion, the Centre has formulated a new policy which suggests setting up of a National Centre for the elderly suffering from dementia and other mental diseases. The new policy would take care of the need for dedicated health care facilities to the elderly. Geriatric units at even the primary health centres would be set up in 100 districts in 21 states.

## Pakistan test fires nuclear missile

Pakistan successfully test-fired a nuclear-capable ballistic missile on Wednesday, the military said, less than a week after rival India tested a missile capable of delivering nuclear warheads as far as Beijing and Eastern Europe. Pakistan's Shaheen-1A is an intermediate range ballistic missile, capable of reaching targets in India. Military officials declined to specify the range of the missile. The missile's impact point was in the Indian Ocean. India and Pakistan have fought three full-scale wars since they were carved out of British India in 1947. They conduct missile tests regularly and inform each other in advance. Pakistan conducted nuclear tests in May 1998, shortly after India conducted similar tests. U.S. intelligence estimates last year put the number of nuclear weapons deployed by Pakistan at 90 to 110. Analysts say the strategic U.S. ally's nuclear arsenal is the fastest growing in the world.

Pakistan, like neighboring India, is not a signatory to the nuclear non-proliferation treaty (NPT).

## Best State Award for Strengthening the Panchayati Raj Institutions

Sikkim, on 24 April 2012, won the best state award for strengthening its panchayati raj institutions. The northeastern state bagged the five prestigious national awards worth of 1.36 crore rupees, at a Panchayat Raj Day function held at Vigyan Bhawan in New Delhi. Union rural development minister Jairam Ramesh and Union minister of panchayati raj and tribal development V Kishore Chandra Deo presented the 2011-12 Panchayat Empowerment & Accountability Incentive Scheme (PEAIS) award to Sikkim's rural management and development minister CB Karki.

## UN Secretary General Ban Ki-Moon impressed with India's public health efforts

"The UN Secretary General met me (in Delhi) on April 26, 2012 during his current visit to India and appreciated the public health efforts being put in by us," Azad said in his address at the 32nd convocation of Post Graduate Institute of Medical Education and Research (PGIMER). UN Secretary General Ban Ki-Moon, who is on a four-day visit to India, has appreciated the public health efforts of the country, Union Health and Family Welfare Minister Ghulam Nabi Azad said

The Panchayat Empowerment & Accountability Incentive Scheme (PEAIS) is a Central Sector Plan Scheme which is being implemented by the Ministry of Panchayati Raj since 2005-06. The scheme had an allocation of 5 crore for 2005-06, which was raised to 10 crore rupees for the subsequent years.

## Arctic Ocean could be a significant contributor of methane

According to a study report published in the journal Nature Geoscience on 22 April 2012, the Arctic Ocean could be a significant contributor of methane, a powerful greenhouse gas. Researchers carried out five flights in 2009 and 2010 to measure atmospheric methane in latitudes as high as 82 degrees north. They found concentrations of the gas close to the ocean surface, especially in areas where sea ice had cracked or broken up. The scientists are now concerned over the fact that the new disturbing mechanism could accelerate global warming. The scientists involved in the study opined that the surface waters of the Arctic Ocean represent a potentially important source of methane, which could prove sensitive to changes in sea-ice cover. Levels of methane in the atmosphere are relatively low, but the gas is 20 times more effective than carbon dioxide (CO2) at trapping solar heat. Scientists have been struggling to understand the movements of the methane curve.

## Diversity is the mammal's best defense when it comes to adapting climatic changes

A study published in the journal Public Library of Science One on 23 April 2012, described that the diversity is the mammal's best defense when it comes to adapting climatic changes. In one of the conclusions of the first study of how mammals in North America adapted to climate change the

researchers found that diversity helped them to sustain in the changing climate.

The role of diversity in mammalian adaptation is specifically important given the fact that mammal species have been going extinct in record numbers for the past 400 years. In a 2008 report, the International Union for the Conservation of Nature predicted that one in four species of land mammals in the world faces extinction. As a result, the diversity of mammalian families is declining at a time when they need it the most to cope with a rapidly changing climate. Larisa R. G. DeSantis, the assistant professor of earth and environmental studies at Vanderbilt directed the study, while it was co-authored by Rachel A. Beavins Tracy, Cassandra S. Koontz, John C. Roseberry and Matthew C. Velasco. The project was supported by funds from Vanderbilt University.

## Vodafone acquired Cable & Wireless Worldwide

Vodafone on 23 April 2012 acquired communication service provider Cable & Wireless Worldwide (CWW) in a deal just over 1 billion pound. The deal is aimed at strengthening Vodafone's enterprise and international services, and will let the mobile operator offload increasing mobile traffic onto the Cable & Wireless Worldwide (CWW) fibre network in the UK. CWW, with its fibre network spread across 20500km in the UK, and 425000km long internationally, will help Vodafone to overcome its rivals O2 and Everything Everywhere to become the second-largest telco in the UK after BT. The company has 127 points of presence in 35 countries. It also owns a number of submarine cables around the world, along with many datacentres.

## Reserve Bank of India directed Banks to Print MICR and IFSE code on the passbook

Apex Indian bank, the Reserve Bank of

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India on 21 April 2012 directed all commercial banks to print the MICR and IFSE code on the passbook and statement of account of the customers. The bank made the printing of MICR and IFSE code compulsory for all the banks.

The banks, under their current practice, provide MICR code on the cheque leaf along with the IFSC code of the branch. Under the RBI guidelines, MICR code is mandatory for all electronic clearing services (credit and debit) transactions. IFSC code is a prerequisite for national electronic funds transfer (NEFT) and real time gross settlement (RTGS) transactions. MICR (Magnetic Ink Character Recognition) is the bottom line on all checks. It is printed using a special font.

IFSC Code (Indian Financial System Code) is an eleven character code assigned by RBI to identify every bank branches uniquely, that are participating in NEFT system in India. This code is used by electronic payment system applications such as RTGS, National Electronic Fund Transfer and CFMS. Asian Badminton Championship 2012 China's Xiao Jia Chen defetaed ace Indian shuttlr Saina Nehwal, in the second round of the Asian Badminton Championship on 20 April 2012. The 40th ranked Chen outplayed the Fifth seeded Nehwal in a closely contested match. Saina in the first round of the championship had defetaed Kaori Imabeppu of Japan.

With regard to Olympic qualification, the significant loss was that of the mixed doubles pair of Jwala Gutta and V Diju. They lost to Korea's Sa Rang Kim and Hye In Choi. Jwala and Diju are currently ranked No.16 in the world and will have to maintain or improve their ranking in order to make the cut for the London Games.

## Recommendations of ECoS

ECoS has submitted its recommendations for revival of closed units of Hindustan Fertilizer Corporation Limited (HFCL) and Fertilizer Corporation of India Limited (FCIL). As per the recommendations the Sindri, Talcher and Ramagundam units of FCIL are to be revived through nomination basis by the consortium of PSUs. Gorakhpur and Korba units of FCIL and Durgapur, Barauni & Haldia units of HFCL are to be awarded through a bidding process. The recommendation of the ECOS, were considered by the Cabinet Committee on Economic Affairs (CCEA) in its meeting held on 4th August, 2011 and approved the same with the stipulations that Board for Industrial and Financial Restructuring (BIFR) proceeding be expedited and thereafter, the matter including changes, if any, required in bid parameters, be placed before the Committee for a final decision. As required under the rules FCIL and HFCL have submitted their Draft Rehabilitation Schemes (DRS) to BIFR for approval.

## U.S., Russia close to agreement on preventing cyber conflict: report

The United States and Russia are finalizing an agreement to use their secure nuclear communication system to prevent possible misperceptions in cyberspace from escalating to full hostilities, a newspaper report disclosed on April 27, 2012. The Nuclear Risk Reduction Center, established in 1988 under President Ronald Reagan so that Washington and Moscow could alert each other to missile tests and space launches that could be mistaken as acts of aggression, would take a central role in the agreement nearing completion between the two sides. The Washington Post said in a frontpage story. Under the agreement, in case of a cyber incident, the channel of communication could be activated if either side detects what appears to be hostile activity from the other's territory, officials were quoted as saying. The secure channel would be a milestone in the efforts to ensure that misperceptions in cyberspace do not escalate to full hostilities, the report quoted U.S. officials and experts from both countries as saying. The U.S.-Russian talks reflect the increasing importance of cyber activities as points of potential conflict between nations, as the Obama ad-

ministration is increasingly worried about a cyber attack that could disrupt computer systems providing water, power or other critical services to Americans, the report said. This agreement, the first between the United States and another country seeking to lessen the danger of conflict in cyberspace, would be an initial step toward making cyberspace more stable, the report added. The agreement is a result of the high-level cyber security talks held by the United States and Russia in Moscow in February 2011 and a follow-up last June in Washington to establish confidence-building measures to prevent cyber conflict.

## Clinton visit to India to focus on non-proliferation

The U.S. Secretary of State Hillary Clinton will focus her India visit early next month on the issue of non-proliferation, reported the Press Trust of India on April 28, 2012.

"The Secretary will be in India, both in Delhi and in Calcutta. She'll have a chance in the context of our bilateral dialogue to talk about the full range of issues, including non-proliferation issues," the U.S. State Department spokesperson Victoria Nuland was quoted as saying in Washington. The spokesman was responding to questions on the Agni V intercontinental missile test by India this month and a later medium-range missile test by Pakistan, according to the report. The U.S. had then called for restraint of such tests.

Hillary Clinton is due to visit India on May 6 after visiting China and Bangladesh.

## EU eyes closer ties with ASEAN, participation of East Asia Summit

The 19th ASEAN-EU Ministerial Meeting (AEMM) ended in Brunei Friday, with the European Union (EU) officials signalling intention to join the East Asia Summit and a would-be non-aggression treaty with ASEAN as EU moves to play a bigger role in Asia. The two regional blocs also agreed to greater economic cooperation, lauding the "rapid progress" in negotiations for bilateral trade agreements with key ASEAN partners, paving the way for a single ASEAN-EU free trade agreement.

Mohamed Bolkiah, Brunei's Minister of Foreign Affairs, said it was good to see "practical results" from the conclusion of the 19th AEMM. "This will strengthen the development of all ASEAN member states. We are grateful for the support of the European Union," he told a press conference after the meeting. EU is ASEAN's second largest trading partner and single largest investor with trade volume topping 200 billion U.S. dollars.

Catherine Ashton, EU's high representative for Foreign Affairs and Political Security, said both parties look forward to an early signature to the ASEAN Treaty of Amity and Cooperation, which bans signatories from using violence to settle conflicts in the region "Developing our relations with Asia across the board is a major strategic objective for the European Union," she said, "The European Union wants to be an active and constructive player in Asian regionalism, including by taking part in the East Asia Summit (EAS)." Brunei will chair the EAS next year when it takes over the ASEAN chairmanship.

The two regions have drawn up an ambitious five-year plan of action for enhanced cooperation across economic, political and administrative spheres, and have agreed to boost cooperation in maritime security, energy security, crisis management, human rights and the non-proliferation of weapons of mass destruction. Mohamed Bolkiah said the meeting was an excellent platform to hear directly from the EU on a range of issues such as the Eurozone crisis and global political problems. The Ministers from ASEAN members states have welcomed the EU's decision to suspend part of sanctions on Myanmar.

Mohamed Bolkiah also announced two new EU-sponsored programs, the ASEAN Regional Integration Support and Regional EU-ASEAN Dialogue Instrument, to help ASEAN reach its "regional integration targets", at a cost of 20 million euros (26.5 million U.S. dollars) .

## Russia's manned Soyuz capsule lands safely in Kazakhstan

The Russian Soyuz TMA-22 spacecraft with a crew of three landed safely in Kazakhstan Friday, Russia's Mission Control said. The space capsule carried back to the Earth Russian cosmonauts Anton Shkaplerov and Anatoly Ivanishin and NASA astronaut Dan Burbank, who had spent 165 days in orbit.

The Soyuz TMA-22 undocked from the International Space Station (ISS) at 12:18 Moscow time (0818 GMT) and landed in Kazakhstan's steppe at 15:45 Moscow time (1145 GMT). The capsule touched down within the designated area, some 85 km north-east of northern Kazakh city of Arkalyk, Mission Control said.

The three crew members were scheduled to return to Earth on March 16, but the mission was delayed after an air leak was discovered in the re-entry vehicle of the Soyuz TMA-04M craft that was to bring the replacement crew. Russia's federal space agency, Roscosmos, announced the new ISS crew, including Russian cosmonauts Gennady Padalka and Sergei Revin and NASA astronaut Joseph Acaba, would fly to the ISS on May 15 by Soyuz TMA-04M. After the retirement of the U.S. shuttle fleet, Russia's Soyuz spacecraft are the only way for astronauts to reach the ISS at least until 2015.

## U.S. economic expansion eased to 2.2 percent in the first quarter

U.S. economic expansion eased to 2.2 percent in the first quarter of this year, fresh evidence of the struggling economic recovery, while experts held that additional growth was needed to sustain the job growth and growth momentum.

The department's advance estimate of gross domestic product is a deceleration from the 3 percent recorded in the fourth quarter of 2011, the U.S. Commerce Department reported Friday. The growth rate was largely in line with market expectations. The moderating pace of economic growth mainly reflected the slower pace of business investment and restocking shelves in the first three months of this year. However, stronger export demand and less spending cuts by the federal government bucked the trend.

The latest advance estimate indicates that the U.S. economy posted its 11th straight quarter of positive growth, and auto production and residential construction registered strong gains, encouraging signs that the private sector is continuing to heal from the worst recession since the Great Depression, Alan Krueger, chairman of the White House Council of Economic Advisers, said on April 27, 2012. Real nonresidential fixed investment decreased 2.1 percent in the first quarter, in contrast to an increase of 5.2 percent in the previous quarter, the department said. The change in real private inventories added 0.59 percentage point to the first-quarter change in real GDP after adding 1.81 percentage points to the fourth-quarter GDP change, it said. Real federal government consumption expenditures and gross investment decreased 5.6 percent in the first quarter, compared with a decrease of 6.9 percent in the fourth quarter. Real exports of goods and services increased 5.4 percent in the first quarter, compared with an increase of 2.7 percent in the fourth quarter. Real personal consumption expenditures, the major engine of the U.S. economic growth, rose 2.9 percent in the first quarter, compared with an increase of 2.1 percent in the previous quarter. "While the continued expansion of the economy is encouraging, additional

growth is needed to replace the jobs lost in the deep recession that began at the end of 2007," Krueger said in a blog article.

The U.S. consumers continue to almost single-handedly carry the economy in the first quarter. At first glance investment looks healthy, but equipment and software spending was very weak, indicating that firms remain concerned about the outlook, Standard Chartered Bank economists David Mann and David Semmens said Friday in a note.

Once these numbers have been digested, the U.S. economy remains in a dire position, they warned. The build-up in inventories is worrisome, as without an increase in real wage growth, consumer demand will have to continue to be driven by reduced savings, but unfortunately the U. S. consumers are still in the early stages of a prolonged deleveraging process. U.S. personal saving rate, saving as a percentage of disposable personal income, fell from 4.5 percent in the fourth quarter to 3. 9 percent in the first quarter of this year.

## Argentine Senate backs YPF nationalization

Argentina's proposal to nationalize the country's biggest oil company sailed through the Senate by a 63-3 vote on Thursday, underscoring broad domestic support for a move that has infuriated foreign investors. The bill aimed at expropriating YPF, a unit of Spanish energy major Repsol, is expected to be approved by the lower house next week and become law. President Cristina Fernandez, a popular second-term leader who controls both houses of Congress, unveiled plans last week to seize a 51 percent stake in YPF from Repsol.

She says the parent company has under-invested and under-produced in Argentina, a charge that Repsol dismisses.

Most Argentines support the move to renationalize YPF, privatized in the 1990s after 70 years under full state control.

Many blame the privatizations and free-market reforms of that decade for provoking Argentina's 2001/02 financial meltdown.

"The privatization of YPF was one of the worst mistakes of that era," Senator Miguel Pichetto, a Fernandez ally, said just before the vote was called. Latin America's No. 3 economy has yet to return to global credit markets a decade after its crippling 2001/02 sovereign debt default -- the biggest in history.

With memories of this debacle still fresh, many voters have hailed Fernandez's calls for "energy sovereignty." A survey published last week-end by local polling company Poliarquia showed 62 percent of respondents agreed with the expropriation, with 23 percent against it. "The government's bill doesn't reflect a capricious or random decision," ruling party senator Marcelo Fuentes said during the marathon debate. "It's a logical result stemming from the need to reverse free-market thinking in energy policy." The early morning vote, in which four senators abstained, was held after a 15-hour debate.

Argentina's trade surplus, a pillar of Fernandez's economic policy, shrank last year as fuel imports more than doubled - sending the issue of flagging oil and natural gas production to the top of the president's list of priorities. Once the takeover becomes law, attention will turn to the compensation Argentina will pay Repsol for its stake. Officials have already said it will be far lower than the \$9.3 billion the company has sought.

The nationalization has investors and trade partners worried about increasingly antagonistic policies such as import curbs. Madrid has vowed to halt multimillion-dollar imports of biodiesel from Argentina in retaliation while ratings agencies Moody's and S&P said the YPF seizure could heighten Argentina's economic isolation at a time of slowing growth. Despite criticism from business groups about her state-centric policies, Fernandez was re-elected in October with 54 percent of the vote. She pledged during that campaign to deepen the government model pioneered by her late husband and predecessor as president Nestor Kirchner.

# FARC rebels kill eight in Colombia attacks

The authorities in Colombia say left-wing Farc rebels have killed eight people including an infant in two separate attacks. In the first the rebels killed five soldiers in an army patrol in the south-west of the country. Later a baby and her parents died after home-made mortars were fired at a police station in Puerto Rico in Caqueta state, also in the south. The mortars missed their target, hitting the family's house.



The Revolutionary Armed Forces of Colombia – People's Army (Spanish: Fuerzas Armadas Revolucionarias de Colombia or **FARC**) is a Marxist–Leninist revolutionary guerrilla organization based in Colombia, involved in the ongoing Colombian armed conflict. It is a peasant army with a proclaimed agrarian, anti-imperialist platform of Bolivarian inspiration. It claims to represent the rural poor in a struggle against Colombia's wealthier classes, and opposes United States influence in Colombia (e.g. Plan Colombia), neo-imperialism, monopolization of natural resources by multinational corporations paramilitary and government violence. It is funded principally through ransom kidnappings, gold mining and the production and distribution of illegal drugs.

Estimates of FARC's membership vary. The Colombian military has placed their number at 18,000 in 2010, of whom half were guerillas. FARC itself claimed in 2007 to have a military force of 18,000. According to Colombian president Juan Manuel Santos, speaking in 2011, FARC may have fewer than 8,000 members. From 1999 to 2008 FARC, together with the ELN guerrilla group, was estimated to control between 30 and 40% of the territory in Colombia. The largest concentrations of FARC guerrillas are believed to be located throughout the southeastern parts of Colombia's 500,000 square kilometers (190,000 sq mi) of jungle and in the plains at the base of the Andean mountains.

FARC was established as a military wing of the Colombian Communist Party after government military forces attacked rural communist enclaves during the aftermath of La Violencia in 1964. FARC is a violent non-state actor (VNSA), described as a terrorist group by the governments of Colombia, the United States, Canada, Chile and New Zealand, as well as by the European Union. The governments of Venezuela, Brazil, Argentina, Ecuador and Nicaragua do not classify FARC as a "terrorist organization". Venezuelan President Hugo Chávez rejected their classification as "terrorists" in January 2008, considering them to be "real armies", and called on the Colombian and other governments to recognize the guerrillas as a "belligerent force", arguing that this would then oblige them to renounce kidnappings and terrorism, and respect the Geneva Conventions.

Fernandez, a fiery public speaker sometimes compared to Argentina's famous first lady Evita Peron, has worn only black since Kirchner's sudden death in 2010 and she has dedicated YPF's takeover to his memory. Fernandez acknowledged she was nervous when she announced the YPF takeover plan: "They weren't nerves caused by doubts or insecurities. On the contrary; I'm absolutely certain that this is the only way. "What upset me was that he (Kirchner) couldn't be here to see such a historic moment."

## U.S. space shuttle Enterprise lands in New York City

The U.S. space shuttle Enterprise left Washington, D.C. on Friday morning and flew over landmarks in New York City before landing at John F. Kennedy International Airport to wrap up its final mission in the sky.



Sitting atop a modified Boeing 747 plane, the space shuttle soared over New York Harbor, overflying the Statue of Liberty and the Intrepid Sea, Air and Space Museum on Manhattan's west side to the delight of onlookers. After its fly-around, the space shuttle will remain for a few weeks at JFK International Airport until it's taken off the 747 jet it rode to New York and will be transported to the Intrepid, where it will be put on the flight deck. The Enterprise was never used in an actual space mission but was a full-scale test vehicle in the air and on the ground.

## China-central, eastern Europe ties

Visiting Chinese Premier Wen Jiabao and governmental leaders from 16 central and eastern European countries discussed advancing ties here on April 26, 2012. The leaders included the prime ministers of Poland, Bosnia and Herzegovina, Croatia, Czech Republic,

Estonia, Hungary, Latvia, Lithuania, Macedonia, Montenegro, Romania, Serbia, Slovakia and Slovenia, and the deputy prime ministers of Albania and Bulgaria.

According to a press communique issued after the summit, China reaffirmed support for European integration and the measures taken by central and eastern European nations to promote healthy economic development. Meanwhile, the European countries welcomed China's contribution to the world economy through its fast yet steady economic growth.

The leaders agreed to deepen practical cooperation in trade, investment, fiscal and financial areas. And China would take positive steps to back cooperation with the European countries in infrastructure, high and new technology and clean energy. Aiming to further bolster two-way investment, the leaders expressed commitment to eradicating trade and investment protectionism.

They also agreed to advance people-to-people exchanges.

## Chinese, Russian warships gather for joint drill

Chinese and Russian warships gathered at the eastern Chinese harbor of Qingdao Saturday to prepare for a joint exercise, slated for April 22-27 in the Yellow Sea. A total of 16 vessels and two submarines from Chinese navy have been summoned at Qingdao of east China's Shandong Province, including five missile destroyers, five missile frigates, four missile boats, a support vessel and hospital ship. Together with them are 13 aircraft and five shipboard helicopters. More than 4,000 Chinese servicemen will attend the drill, said the navy sources. A Russian naval task force arrived at the naval base in Qingdao.

The task force, four warships from Russian navy's Pacific Fleet and three supply ships, left their home port in Vladivostok on April 15. The Russian warships include the Pacific Fleet's flagship Varyag, a slava-class guided missile cruiser, and Marshal Shaposhnikov, Admiral Panteleyev and Admiral Vinogradov, three Udaloy-class destroyers. According to China's Defense Ministry, the exercise will focus on joint maritime air defense, anti-submarine tactics, maritime search and rescue as well as joint effort to rescue hijacked vessels. The two navies will also deploy aircraft and special force units to conduct joint maritime anti-terror task in the exercise. China and Russia have conducted four bilateral and multilateral military exercises since 2005. ●●●

OPINION - EDITORIALS

Next month, SpaceX of Hawthorne, California, is scheduled to launch

D.S. Rajput

When it comes to doing science on the International Space Station (ISS), the laws of gravity have been flipped: what goes up mostly stays up. A case in point are two freezers packed with more than 2,000 Arabidopsis seedlings awaiting return to Earth, where they can be analysed for changes in gene expression. The samples cannot fly home aboard the unmanned European, Japanese and Russian cargo capsules that regularly deliver equipment and experiments to the station, because these capsules burn up on re-entry. Even the Russian Soyuz capsules that are the only route back to Earth since the space shuttle was retired last year are not ideal, because they lack freezers to store the seedlings during the plunge home, says the experiment's lead investigator Imara Perera, a plant biologist at North Carolina State University in Raleigh. "If they thaw out, then the RNA will be degraded." Now science is about to get a new way home from the ISS. It marks a first step in what NASA hopes will be the space station's transformation from an orbiting construction site into a thriving research laboratory (see 'Making space for science'). The viability of the International Space Station (ISS) as a research platform depends on transport to and from it and on having a full (six-person) crew available. ● November 1998 First ISS module deployed ● November 2000 First station crew dock ● February 2003 Loss of Columbia grounds shuttle fleet for more than 2 years ● March 2008 European Space Agency launches its first resupply vehicle ● May 2009 First six-person crew arrives at ISS ● September 2009 Japanese space agency JAXA launches its first resupply vehicle ● March 2011 ISS completed ● July 2011 Space-shuttle fleet retired More **Next month**, SpaceX of Hawthorne, California, is scheduled to launch Dragon, a pressurized capsule that can make a round trip to the station. Lofted by the company's Falcon 9 rocket, it should dock with the space station four days later. As a demonstration mission,

it will carry low-priority cargo. But if all goes well, several aluminium-alloy rods, melted and solidified under microgravity in a special furnace, will be returned to Earth, where researchers will study their recrystallization patterns. Eventually, NASA will pay for four re-supply missions a year — which could come from both SpaceX and Orbital Sciences, based in Dulles, Virginia, which is planning to test its Antares rocket and Cygnus capsule later this year (see 'Planned missions'). Planned missions ● May 2012 First docking of SpaceX's Dragon capsule ● August 2012 First Dragon resupply mission ● 2012 (4th quarter) Test flight of Orbital Science's Cygnus capsule ● 2013 First Cygnus resupply mission More NASA is betting that scientific interest will match the increased tempo of the upcoming launches. Last year, NASA picked the non-profit Center for the Advancement of Science in Space (CASIS), based at Cape Canaveral in Florida, to manage half of the US research area on the station, which the US Congress deemed a national laboratory in 2005. CASIS will get US\$15 million in annual funding from NASA, and 50% of the cargo space on rides to and from the station, including Dragon. By holding researchers' hands and helping them through the thicket of NASA rules and regulations, the centre aims to reduce bureaucratic hassle. "What sometimes took years, we want to be able to do in months," says CASIS's interim director, Jim Royston. For months, CASIS staff have been attending scientific conferences and visiting pharma-ceutical labs, trying to drum up interest among researchers outside NASA. They have also begun to put together a panel of external scientists to review and prioritize experiments. Solicitations for research, planned for June, will offer \$3 million of CASIS's own seed money to researchers, although the centre hopes that the attraction of free flights and free space on the station, along with the free labour of station crew members, will be so enticing that proposers will bring their own grant money to the table. That money could come from other US science agencies, such as the National Institutes of Health in Bethesda, Mary-



land, or from private sources. The panel will judge proposals not only on their scientific merit, but also on their potential for commercialization. The emphasis on applied research is motivated in part by the limited lifetime of the space station, which is currently scheduled to operate until 2020, says Timothy Yeatman, who on 5 April was named interim chief scientist for CASIS and head of the review panel. "We know that funding for the ISS can't go on in perpetuity," says Yeatman, a surgical oncologist at the Moffitt Cancer Center in Tampa, Florida. CASIS also has the challenge of wooing back researchers — particularly those in biomedicine, physics and materials science — who were involved in experiments on the ISS but were sidelined in the mid-2000s when the station's crew was reduced following the loss of the space shuttle Columbia. Moreover, ISS-based research shifted towards medical research related to a manned Moon mission — a plan that has since been dropped. "You really have to coax people back now," says Jeffrey Manber, managing director of NanoRacks in Houston, Texas, which built small cubic experimental modules, installed them on the space station and now rents the modules to researchers. Some of CASIS's first solicitations will be for research in materials science and remote Earth observations. Yeatman says that biomedical research is also ripe for renewal, especially in areas such as osteo-porosis and protein crystallography. The osteoporosis-like disorders that develop in mice after just a few months in space may be a more natural model on which to test drugs than mice that acquire osteo-porosis through gene experiments, he says. Previous ISS research also suggested that proteins form higher-quality crystals in space than on Earth, Yeatman adds. That may help biologists to deduce currently unknown protein structures — if they can get the specialized crystals back from space to an X-ray light source before they degrade. Paul Reichert, a structural chemist at Merck Research Laboratories in Kenilworth, New Jersey, is keen to see success. He is a veteran of experiments on six space-shuttle missions, and tried to crystallize one particular kinase, a signalling protein, aboard the ISS. He obtained some crystals, but by the time he brought the samples back three months later, they were so degraded that it was impossible to get a clean X-ray diffraction signal. "I only had one shot," he says. He is eager for another chance to do research in space. "It gets in your blood." Perera is similarly eager to see her experiment through — but has been waiting since July last year, when her Arabidopsis seedlings were taken up on the last shuttle mission. Her plants are currently on the return manifest for the first official Dragon resupply mission, which could launch later this year. "There's some kind of history here," she says. "You go up on the last shuttle and come back on the first SpaceX. It's very exciting, but it's kind of nerve-racking."

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EU austerity pact : Franco-German conflict

Ms Merkel is trying to make it a fait accompli just as support for it is wavering

A wellhead of votes gushed open on Friday for the socialist candidate in next week's presidential election, François Hollande. It had been drilled by Nicolas Sarkozy's backer and fellow conservative — Angela Merkel. Dismissing one of Hollande's central campaign pledges, she said the fiscal pact was not up for re-negotiation. Mr Hollande shot back that Germany does not speak for Europe, adding that France had already expressed its choice for a new approach to Europe. All of which is true. If one thought unites the anti-Sarkozy vote from left to right, it is that the inflexible pursuit of austerity is pushing Europe into a deflationary spiral, lengthening dole queues and increasing the misery all around. For the man with the Mona Lisa smile, the German chancellor's first and last intervention in the French election was a gift. Her case was not helped by the sound of tinkling glass around her. The government in Romania became the latest after the Netherlands to collapse over budget cuts, and the Czech government could also be not long for this world. Spain is facing a crisis of huge proportions and its credit rating was slashed. With friends like these, Ms Merkel is looking exposed to her ideological foes. While 25 of the 27 EU members signed her pact at the EU summit last month, only three — Portugal, Greece and Slovenia — have ratified it. If Mr Hollande becomes president and goes on to win a majority of seats in parliament, there is no chance that France will ratify the pact in its present form. Ms Merkel is trying to make it a fait accompli just as support for it is wavering. True, its critics have different plan Bs, but the need to support growth, which Ms Merkel put second to spending cuts, is rising up the EU's agenda. To Mr Hollande's delight Mario Draghi, the head of the European Central Bank, called this week for a growth pact to augment Berlin's fiscal treaty. All this is for public consumption, but the reality for both leaders after next Sunday's election might make their first meeting more consensual than today seems possible. The next French president will inherit a balance of payments crisis to tax the coolest of heads. France pays more in interest on its debt than it does on education. Unlike Japan, or Britain, French government debt is largely foreign-owned. He can raise taxes, but he cannot print money or revalue his currency. The latitude he has to spend his way out of crisis is more limited than he is admits. German opposition to fiscal stimulus, and increasing the debt, will also have to bend. The German industrial giants can talk as much as they want about their exports to China, but what is happening in their biggest market will hit them too.



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DEVELOP INDIA

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Samsung overtakes Nokia in mobile phone shipments

Samsung Electronics has overtaken Nokia to become the world's largest maker of mobile phones, according to research firm Strategy Analytics. Nokia took the top spot in 1998 from Motorola, but in the first quarter of 2012 Samsung shipped 93m phones compared to almost 83m by Nokia. Samsung also reported its highest quarterly profit since 2008. Net profit was 5.05tn won (\$4.5bn; £2.8bn) in the quarter ending 31 March, up 81% from 2.78tn won last year. Samsung is also the world's biggest TV and flat screen maker. "We cautiously expect our earnings momentum to continue going forward, as competitiveness in our major businesses is enhanced," said Robert Yi, head of investor relations at Samsung. **Bright future** The firm said its IT and mobile communications division, which manufactures the smartphones, made an operating profit of 4.27tn won during the period, as revenues in the division surged 86% from a year earlier. Samsung will unveil the latest version of its Galaxy range of phones on 3 May. The Galaxy range has been very popular and helped Samsung overtake Apple to become the world's biggest seller of smartphones. "The smartphone market has almost only two players, Samsung and Apple," said Lee Sei-Cheol of Meritz Securities. "Since its Galaxy3 phone is being unveiled in May, Samsung will keep enjoying sales growth in its mobile phone division." Global mobile handset shipments (Q1) 

Company	Units (millions)	Market share
Samsung	93.5	25.4%
Nokia	82.7	22.5%
Apple	35.1	9.5%
Other	156.7	42.6%

**Bright future** Global demand for smartphones is expected to increase further in coming years, with research firm IDC forecasting that global smart phone shipments will rise by a third to 659.8 million units in 2012. Analysts said that given its robust growth and dominance in the sector, Samsung was well placed to benefit from this growth and boost its market share. However, given the robust growth in the sector, other smartphone makers are also keen to introduce new products and tap into the fast-growing market. Samsung is facing stiff competition from rivals such as US-based Apple, Finland's Nokia, and Taiwan's HTC. Apple, which said earlier this week that it sold 35 million of its iPhones in the first quarter, is expected to launch a new version of its handset later this year. Analysts said that as more models are launched, manufacturers may have to the cut price of their handsets in a bid to attract consumers, a move that may see profit margins shrink. "Samsung's handset earnings may weaken in the latter half of this year, with the possible launch of Apple's iPhone 5," said Brian Park of Tong Yang Securities. **Chip troubles** Another area of concern for Samsung is likely to be its chip manufacturing unit, which has been hurt by slowing global demand for personal computers. The firm is one of the world's biggest makers of dynamic random-access memory (DRAM) chips, which are widely used in personal computers. However, demand for these chips has been declining as consumers turn to tablet PCs, which mostly use flash memory chips. At the same time, falling prices have also hurt profitability in the sector. Samsung's memory-chip division saw its profits slide by 54% during the first quarter when compared with the same period a year earlier. The company said it expected the demand for DRAM chips to rebound in the coming months, but warned that growing competition in the sector "will lead to a price decline". **Samsung Electronics** is a South Korean multinational electronics and information technology company headquartered in Samsung Town, Seoul. It is the flagship subsidiary of the Samsung Group. With assembly plants and sales networks in 61 countries across the world, Samsung has approximately 160,000 employees. In 2009, the company took the position of the world's biggest IT maker by surpassing the previous leader Hewlett-Packard. Its sales revenue in the areas of LCD and LED displays and memory chips is number one in the world. In the TV segment, Samsung's market position is dominant. For the five years since 2006, the company has been in the top spot in terms of the number of TVs sold, which is expected to continue in 2010 and beyond. In the global LCD panel market, the company has kept the leading position for eight years in a row. With the Galaxy S model mobile phone, Samsung's smartphone lineup has retained the second-best slot in the world market for some time. In competition to Apple's iPad tablet, Samsung released the Android powered Samsung Galaxy Tablet. **Nokia Corporation** is a Finnish multinational communications corporation headquartered in Keilaniemi, Espoo, a city neighbouring Helsinki. Its principal products are mobile electronic devices, primarily mobile telephones and other communications devices. It also offers Internet services such as applications, games, music, maps, media and messaging through its Ovi platform, and free-of-charge digital map information and navigation services through its wholly owned subsidiary Navteq. Nokia has a joint venture with Siemens, Nokia Siemens Networks, which provides telecommunications network equipment, solutions and services.



# GENETICALLY MODIFIED FOODS

An issue that has entered the mainstream media in a lot of countries (noticeably not really in the US) is Genetic Engineering (GE) or Genetic Modification (GM) of food. A lot of food that we eat today contains genetically modified ingredients and usually without our knowledge. Supporters of this technology maintain that it ensures and sustains food security around the world as the population increases.

Genetically-modified foods (GM foods) have made a big splash in the news lately. European environmental organizations and public interest groups have been actively protesting against GM foods for months, and recent controversial studies about the effects of genetically-modified corn pollen on monarch butterfly caterpillars have brought the issue of genetic engineering to the forefront of the public consciousness in the U.S. In response to the upswelling of public concern, the U.S. Food and Drug Administration (FDA) held three open meetings in Chicago, Washington, D.C., and Oakland, California to solicit public opinions and begin the process of establishing a new regulatory procedure for government approval of GM foods.

The term GM foods or GMOs (genetically-modified organisms) is most commonly used to refer to crop plants created for human or animal consumption using the latest molecular biology techniques. These plants have been modified in the laboratory to enhance desired traits such as increased resistance to herbicides or improved nutritional content. The enhancement of desired traits has traditionally been undertaken through breeding, but conventional plant breeding methods can be very time consuming and are often not very accurate. Genetic engineering, on the other hand, can create plants with the exact desired trait very rapidly and with great accuracy. For example, plant geneticists can isolate a gene responsible for drought tolerance and insert that gene into a different plant. The new genetically-modified plant will gain drought tolerance as well. Not only can genes be transferred from one plant to another, but genes from non-plant organisms also can be used. The best known example of this is the use of Bt. genes in corn and other crops. Bt., or *Bacillus thuringiensis*, is a naturally occurring bacterium that produces crystal proteins that are lethal to insect larvae. Bt. crystal protein genes have been transferred into corn, enabling the corn to produce its own pesticides against insects such as the European corn borer. For two informative overviews of some of the techniques involved in creating GM foods, Genetically Modified foods (GM foods) were first put on the market in 1996. Typically, genetically modified foods are transgenic plant products: soybean, corn, canola, rice, and cotton seed oil. Animal products have also been developed, although as of July 2010 none are currently on the market. In 2006 a pig was engineered to produce omega-3 fatty acids through the expression of a roundworm gene. Researchers have also developed a genetically-modified breed of pigs that are able to absorb plant phosphorus more efficiently, and as a consequence the phosphorus content of their manure is reduced by as much as 60%. Critics have objected to GM foods on several grounds, including safety issues, ecological concerns, and economic concerns raised by the fact these organisms are subject to intellectual property law.

Between 1996 and 2011, the total surface area of land cultivated with GMOs had increased by a factor of 94, from 17,000 km<sup>2</sup> (4.2 million acres) to 1,600,000 km<sup>2</sup> (395 million acres). 10% of the world's crop lands were planted with GM crops in 2010. As time goes on, the science behind genetic engineering is no doubt improving. Biotechnology could be the wave of the future and genetically modified foods could really provide alternatives to help increase food production. However, there is a **growing wave of concern** from citizens, farmers and scientists who question the way the research is currently being handled by a few large, profit-hungry corporations. That is, as well as scientific debates on the merits of genetically engineered food, there are equally, if not more important, debates on the socioeconomic ramifications of the way such science is marketed and

used. Critics believe:

- The problem of food shortages is a **political and economic problem**.
- Food shortages and **hunger are — and will be — experienced by the poorer nations**.
- GE Food is an **expensive technology** that the farmers of the developing nations would not be able to afford easily.
- **Patenting laws go against the poor** around the world and allow biotech companies to benefit from patenting indigenous knowledge often without consent.
- This is a **very young and untested technology** and may not be the answer just yet.
- Crop uniformity, which the biotech firms are promoting, will **reduce genetic diversity** making them more vulnerable to disease and pests. This furthers the need for pesticides (often created by the same companies creating and promoting genetically engineered crops).
- Bans
  - In 2002, Zambia cut off the flow of Genetically Modified Food (mostly maize) from UN's World Food Programme. This left a famine-stricken population without food aid.
  - In December 2005 the Zambian government changed its mind in the face of further famine and allowed the importation of GM maize. However, the Zambian Minister for Agriculture Mundia Sikatana has insisted that the ban on genetically modified maize remains, saying “We do not want GM (genetically modified) foods and our hope is that all of us can continue to produce non-GM foods.”
  - In April 2004 Hugo Chávez announced a total ban on genetically modified seeds in Venezuela.
  - In January 2005, the Hungarian government announced a ban on importing and planting of genetic modified maize seeds, which was subsequently authorized by the EU.
  - On August 18, 2006, American exports of rice to Europe were interrupted when much of the U.S. crop was confirmed to be contaminated with unapproved engineered genes, possibly caused by cross-pollination with conventional crops.
  - On February 9, 2010, Indian Environment Minister, Jairam Ramesh, imposed a moratorium on the cultivation of GMF “for as long as it is needed to establish public trust and confidence”. His decision was made after protest from several groups responding to regulatory approval of the cultivation of Bt brinjal, a GM eggplant in October, 2009.

## Advantages of GM foods?

- The world population has topped 6 billion people and is predicted to double in the next 50 years. Ensuring an adequate food supply for this booming population is going to be a major challenge in the years to come. GM foods promise to meet this need in a number of ways:
  - Pest resistance Crop losses from insect pests can be staggering, resulting in devastating financial loss for farmers and starvation in developing countries. Farmers typically use many tons of chemical pesticides annually. Consumers do not wish to eat food that has been treated with pesticides because of potential health hazards, and run-off of agricultural wastes from excessive use of pesticides and fertilizers can poison the water supply and cause harm to the environment. Growing GM foods such as B.t. corn can help eliminate the application of chemical pesticides and reduce the cost of bringing a crop to market<sup>4, 5</sup>.
  - Herbicide tolerance For some crops, it is not cost-effective to remove weeds by physical means such as tilling, so farmers will often spray large quantities of different herbicides (weed-killer) to destroy weeds, a time-consuming and expensive process, that requires care so that the herbicide doesn't harm the crop plant or the environment. Crop plants genetically-engineered to be resistant to one very powerful herbicide could help prevent environmental damage by reducing the amount of herbicides needed. For example, Monsanto has created a strain of soybeans genetically modified to be not affected by their herbicide product Roundup ®. A farmer grows these soybeans which then only require one application of weed-killer instead of multiple applications, reducing production cost and limiting the dangers of

agricultural waste run-off.

- Disease resistance There are many viruses, fungi and bacteria that cause plant diseases. Plant biologists are working to create plants with genetically-engineered resistance to these diseases.
- Cold tolerance Unexpected frost can destroy sensitive seedlings. An anti-freeze gene from cold water fish has been introduced into plants such as tobacco and potato. With this anti-freeze gene, these plants are able to tolerate cold temperatures that normally would kill unmodified seedlings. (Note: I have not been able to find any journal articles or patents that involve fish antifreeze proteins in strawberries, although I have seen such reports in newspapers. I can only conclude that nothing on this application has yet been published or patented.)
- Drought tolerance/salinity tolerance As the world population grows and more land is utilized for housing instead of food production, farmers will need to grow crops in locations previously unsuited for plant cultivation. Creating plants that can withstand long periods of drought or high salt content in soil and groundwater will help people to grow crops in formerly inhospitable places.
- Nutrition Malnutrition is common in third world countries where impoverished peoples rely on a single crop such as rice for the main staple of their diet. However, rice does not contain adequate amounts of all necessary nutrients to prevent malnutrition. If rice could be genetically engineered to contain additional vitamins and minerals, nutrient deficiencies could be alleviated. For example, blindness due to vitamin A deficiency is a common problem in third world countries. Researchers at the Swiss Federal Institute of Technology Institute for Plant Sciences have created a strain of “golden” rice containing an unusually high content of beta-carotene (vitamin A). Since this rice was funded by the Rockefeller Foundation, a non-profit organization, the Institute hopes to offer the golden rice seed free to any third world country that requests it. Plans were underway to develop a golden rice that also has increased iron content. However, the grant that funded the creation of these two rice strains was not renewed, perhaps because of the vigorous anti-GM food protesting in Europe, and so this nutritionally-enhanced rice may not come to market at all.
- Pharmaceuticals Medicines and vaccines often are costly to produce and sometimes require special storage conditions not readily available in third world countries. Researchers are working to develop edible vaccines in tomatoes and potatoes. These vaccines will be much easier to ship, store and administer than traditional injectable vaccines.
- Phytoremediation Not all GM plants are grown as crops. Soil and groundwater pollution continues to be a problem in all parts of the world. Plants such as poplar trees have been genetically engineered to clean up heavy metal pollution from contaminated soil. Disadvantage of GM foods
  - Environmental activists, religious organizations, public interest groups, professional associations and other scientists and government officials have all raised concerns about GM foods, and criticized agribusiness for pursuing profit without concern for potential hazards, and the government for failing to exercise adequate regulatory oversight. It seems that everyone has a strong opinion about GM foods. Even the Vatican and the Prince of Wales have expressed their opinions. Most concerns about GM foods fall into three categories: environmental hazards, human health risks, and economic concerns.

## Environmental hazards

- • Unintended harm to other organisms Last year a laboratory study was published in Nature showing that pollen from B.t. corn caused high mortality rates in monarch butterfly caterpillars. Monarch caterpillars consume milkweed plants, not corn, but the fear is that if pollen from B.t. corn is blown by the wind onto milkweed plants in neighboring fields, the caterpillars could eat the pollen and perish. Although the Nature study was not conducted under natural field conditions, the results seemed to support this viewpoint. Unfortunately,

B.t. toxins kill many species of insect larvae indiscriminately; it is not possible to design a B.t. toxin that would only kill crop-damaging pests and remain harmless to all other insects. This study is being reexamined by the USDA, the U.S. Environmental Protection Agency (EPA) and other non-government research groups, and preliminary data from new studies suggests that the original study may have been flawed. This topic is the subject of acrimonious debate, and both sides of the argument are defending their data vigorously. Currently, there is no agreement about the results of these studies, and the potential risk of harm to non-target organisms will need to be evaluated further.

- Reduced effectiveness of pesticides Just as some populations of mosquitoes developed resistance to the now-banned pesticide DDT, many people are concerned that insects will become resistant to B.t. or other crops that have been genetically-modified to produce their own pesticides.
- Gene transfer to non-target species Another concern is that crop plants engineered for herbicide tolerance and weeds will cross-breed, resulting in the transfer of the herbicide resistance genes from the crops into the weeds. These “superweeds” would then be herbicide tolerant as well. Other introduced genes may cross over into non-modified crops planted next to GM crops. The possibility of interbreeding is shown by the defense of farmers against lawsuits filed by Monsanto. The company has filed patent infringement lawsuits against farmers who may have harvested GM crops. Monsanto claims that the farmers obtained Monsanto-licensed GM seeds from an unknown source and did not pay royalties to Monsanto. The farmers claim that their unmodified crops were cross-pollinated from someone else's GM crops planted a field or two away. More investigation is needed to resolve this issue.
- There are several possible solutions to the three problems mentioned above. Genes are exchanged between plants via pollen. Two ways to ensure that non-target species will not receive introduced genes from GM plants are to create GM plants that are male sterile (do not produce pollen) or to modify the GM plant so that the pollen does not contain the introduced gene. Cross-pollination would not occur, and if harmless insects such as monarch caterpillars were to eat pollen from GM plants, the caterpillars would survive.
- Another possible solution is to create buffer zones around fields of GM crops. For example, non-GM corn would be planted to surround a field of B.t. GM corn, and the non-GM corn would not be harvested. Beneficial or harmless insects would have a refuge in the non-GM corn, and insect pests could be allowed to destroy the non-GM corn and would not develop resistance to B.t. pesticides. Gene transfer to weeds and other crops would not occur because the wind-blown pollen would not travel beyond the buffer zone. Estimates of the necessary width of buffer zones range from 6 meters to 30 meters or more. This planting method may not be feasible if too much acreage is required for the buffer zones.

## Human health risks

- Allergenicity Many children in the US and Europe have developed life-threatening allergies to peanuts and other foods. There is a possibility that introducing a gene into a plant may create a new allergen or cause an allergic reaction in susceptible individuals. A proposal to incorporate a gene from Brazil nuts into soybeans was abandoned because of the fear of causing unexpected allergic reactions. Extensive testing of GM foods may be required to avoid the possibility of harm to consumers with food allergies. Labeling of GM foods and food products will acquire new importance, which I shall discuss later.
- Unknown effects on human health There is a growing concern that introducing foreign genes into food plants may have an unexpected and negative impact on human health. A recent article published in Lancet examined the effects of GM potatoes on the digestive tract in rats. This study claimed that there were appreciable differences in the intestines of rats fed GM potatoes and rats fed unmodified potatoes. Yet critics say that this paper, like the monarch butterfly data, is



flawed and does not hold up to scientific scrutiny. Moreover, the gene introduced into the potatoes was a snowdrop flower lectin, a substance known to be toxic to mammals. The scientists who created this variety of potato chose to use the lectin gene simply to test the methodology, and these potatoes were never intended for human or animal consumption.

- On the whole, with the exception of possible allergenicity, scientists believe that GM foods do not present a risk to human health.

## Economic concerns

- Bringing a GM food to market is a lengthy and costly process, and of course agri-biotech companies wish to ensure a profitable return on their investment. Many new plant genetic engineering technologies and GM plants have been patented, and patent infringement is a big concern of agribusiness. Yet consumer advocates are worried that patenting these new plant varieties will raise the price of seeds so high that small farmers and third world countries will not be able to afford seeds for GM crops, thus widening the gap between the wealthy and the poor. It is hoped that in a humanitarian gesture, more companies and non-profits will follow the lead of the Rockefeller Foundation and offer their products at reduced cost to impoverished nations.
- Patent enforcement may also be difficult, as the contention of the farmers that they involuntarily grew Monsanto-engineered strains when their crops were cross-pollinated shows. One way to combat possible patent infringement is to introduce a “suicide gene” into GM plants. These plants would be viable for only one growing season and would produce sterile seeds that do not germinate. Farmers would need to buy a fresh supply of seeds each year. However, this would be financially disastrous for farmers in third world countries who cannot afford to buy seed each year and traditionally set aside a portion of their harvest to plant in the next growing season. In an open letter to the public, Monsanto has pledged to abandon all research using this suicide gene technology.

## 20QUESTIONS ABOUT GENETICALLY MODIFIED (GM) FOODS

**Q1. What are genetically modified (GM) organisms and GM foods?**  
Genetically modified organisms (GMOs) can be defined as organisms in which the genetic material (DNA) has been altered in a way that does



not occur naturally. The technology is often called “modern biotechnology” or “gene technology”, sometimes also “recombinant DNA technology” or “genetic engineering”. It allows selected individual genes to be transferred from one organism into another, also between non-related species. Such methods are used to create GM plants – which are then used to grow GM food crops.

**Q2. Why are GM foods produced?**  
GM foods are developed – and marketed – because there is some perceived advantage either to the producer or consumer of these foods. This is meant to translate into a product with a lower price, greater benefit (in terms of durability or nutritional value) or both. Initially GM seed developers wanted their products to be accepted by producers so have concentrated on innovations that farmers (and the food industry more generally) would appreciate.

The initial objective for developing plants based on GM organisms was to improve crop protection. The GM crops currently on the market are mainly aimed at an increased level of crop protection through the introduction of resistance against plant diseases caused by insects or viruses or through increased tolerance towards herbicides. Insect resistance is achieved by incorporating into the food plant the gene for toxin production from the bacterium *Bacillus thuringiensis* (BT). This toxin is currently used as a conventional insecticide in agriculture and is safe for human consumption. GM crops that permanently produce this toxin have been shown to require lower quantities of insecticides in specific situations, e.g. where pest pressure is high. Virus resistance is achieved through the introduction of a gene from certain viruses which cause disease in plants. Virus resistance makes plants less susceptible to diseases caused by such viruses, resulting in higher crop yields.

Herbicide tolerance is achieved through the introduction of a gene from a bacterium conveying resistance to some herbicides. In situations where weed pressure is high, the use of such crops has resulted in a reduction in the quantity of the herbicides used.

**Q3. Are GM foods assessed differently from traditional foods?**  
Generally consumers consider that traditional foods (that have often been eaten for thousands of years) are safe. When new foods are developed by natural methods, some of the existing characteristics of foods can be altered, either in a positive or a negative way. National food authorities may be called upon to examine traditional foods, but this is not always the case. Indeed, new plants developed through traditional breeding techniques may not be evaluated rigorously using risk assessment techniques. With GM foods most national authori-

ties consider that specific assessments are necessary. Specific systems have been set up for the rigorous evaluation of GM organisms and GM foods relative to both human health and the environment. Similar evaluations are generally not performed for traditional foods. Hence there is a significant difference in the evaluation process prior to marketing for these two groups of food.

One of the objectives of the WHO Food Safety Programme is to assist national authorities in the identification of foods that should be subject to risk assessment, including GM foods, and to recommend the correct assessments.

**Q4. How are the potential risks to human health determined?**

The safety assessment of GM foods generally investigates: (a) direct health effects (toxicity), (b) tendencies to provoke allergic reaction (allergenicity); (c) specific components thought to have nutritional or toxic properties; (d) the stability of the inserted gene; (e) nutritional effects associated with genetic modification; and (f) any unintended effects which could result from the gene insertion.

**Q5. What are the main issues of concern for human health?**

While theoretical discussions have covered a broad range of aspects, the three main issues debated are tendencies to provoke allergic reaction (allergenicity), gene transfer and outcrossing. Allergenicity. As a matter of principle, the transfer of genes from commonly allergenic foods is discouraged unless it can be demonstrated that the protein product of the transferred gene is not allergenic. While traditionally developed foods are not generally tested for allergenicity, protocols for tests for GM foods have been evaluated by the Food and Agriculture Organization of the United Nations (FAO) and WHO. No allergic effects have been found relative to GM foods currently on the market.

Gene transfer. Gene transfer from GM foods to cells of the body or to bacteria in the gastrointestinal tract would cause concern if the transferred genetic material adversely affects human health. This would be particularly relevant if antibiotic resistance genes, used in creating GMOs, were to be transferred. Although the probability of transfer is low, the use of technology without antibiotic resistance genes has been encouraged by a recent FAO/WHO expert panel.

Outcrossing. The movement of genes from GM plants into conventional crops or related species in the wild (referred to as “outcrossing”), as well as the mixing of crops derived from conventional seeds with those grown using GM crops, may have an indirect effect on food safety and food security. This risk is real, as was shown when traces of a maize type which was only approved for feed use appeared in maize products for human consumption in the United States of America. Several countries have adopted strategies to reduce mixing, including a clear separation of the fields within which GM crops and conventional crops are grown.

Feasibility and methods for post-marketing monitoring of GM food products, for the continued surveillance of the safety of GM food products, are under discussion.

**Q6. How is a risk assessment for the environment performed?**

Environmental risk assessments cover both the GMO concerned and the potential receiving environment. The assessment process includes evaluation of the characteristics of the GMO and its effect and stability in the environment, combined with ecological characteristics of the environment in which the introduction will take place.

The assessment also includes unintended effects which could result from the insertion of the new gene.

**Q7. What are the issues of concern for the environment?**

Issues of concern include: the capability of the GMO to escape and potentially introduce the engineered genes into wild populations; the persistence of the gene after the GMO has been harvested; the susceptibility of non-target organisms (e.g. insects which are not pests) to the gene product; the stability of the gene; the reduction in the spectrum of other plants including loss of biodiversity; and increased use of chemicals in agriculture. The environmental safety aspects of GM crops vary considerably according to local conditions.

Current investigations focus on: the potentially detrimental effect on beneficial insects or a faster induction of resistant insects; the potential generation of new plant pathogens; the potential detrimental consequences for plant biodiversity and wildlife, and a decreased use of the important practice of crop rotation in certain local situations; and the movement of herbicide resistance genes to other plants.

**Q8. Are GM foods safe?**

Different GM organisms include different genes inserted in different ways. This means that individual GM foods and their safety should be assessed on a case-by-case basis and that it is not possible to make general statements on the safety of all GM foods. GM foods currently available on the international market have passed risk assessments and are not likely to present risks for human health. In addition, no effects on human health have been shown as a result of the consumption of such foods by the general population in the countries where they have been approved. Continuous use of risk assessments based on the Codex principles and, where appropriate, including post market monitoring, should form the basis for evaluating the safety of GM foods.

**Q9. How are GM foods regulated nationally?**

The way governments have regulated GM foods varies. In some countries GM foods are not yet regulated. Countries which have legislation in place focus primarily on assessment of risks for consumer health. Countries which have provisions for GM foods usually also regulate GMOs in general, taking into account health and environmental risks, as well as control- and trade-related issues (such as potential testing and labelling regimes). In view of the dynamics of the debate on GM foods, legislation is likely to continue to evolve.

**Q10. What kind of GM foods are on the market internationally?**

All GM crops available on the international market today have been designed using one of three basic traits: resistance to insect damage; resistance to viral infections; and tolerance towards certain herbicides. All the genes used to modify crops are derived from microorganisms.

**Q11. What happens when GM foods are traded internationally?**

No specific international regulatory systems are currently in place. However, several international organizations are involved in developing protocols for GMOs.

The Codex Alimentarius Commission (Codex) is the joint FAO/WHO body responsible for compiling the standards, codes of practice, guidelines and recommendations that constitute the Codex Alimentarius: the international food code. Codex is developing principles for the human health risk analysis of GM foods. The premise of these principles dictates a premarket assessment, performed on a case-by-

case basis and including an evaluation of both direct effects (from the inserted gene) and unintended effects (that may arise as a consequence of insertion of the new gene). The principles are at an advanced stage of development and are expected to be adopted in July 2003. Codex principles do not have a binding effect on national legislation, but are referred to specifically in the Sanitary and Phytosanitary Agreement of the World Trade Organization (SPS Agreement), and can be used as a reference in case of trade disputes.

The Cartagena Protocol on Biosafety (CPB), an environmental treaty legally binding for its Parties, regulates transboundary movements of living modified organisms (LMOs). GM foods are within the scope of the Protocol only if they contain LMOs that are capable of transferring or replicating genetic material. The cornerstone of the CPB is a requirement that exporters seek consent from importers before the first shipment of LMOs intended for release into the environment. The Protocol will enter into force 90 days after the 50th country has ratified it, which may be in early 2003 in view of the accelerated depositions registered since June 2002.

**Q12. Have GM products on the international market passed a risk assessment?**

The GM products that are currently on the international market have all passed risk assessments conducted by national authorities. These different assessments in general follow the same basic principles, including an assessment of environmental and human health risk. These assessments are thorough, they have not indicated any risk to human health.

**Q13. Why has there been concern about GM foods among some politicians, public interest groups and consumers, especially in Europe?**

Since the first introduction on the market in the mid-1990s of a major GM food (herbicide-resistant soybeans), there has been increasing concern about such food among politicians, activists and consumers, especially in Europe. Several factors are involved. In the late 1980s – early 1990s, the results of decades of molecular research reached the public domain. Until that time, consumers were generally not very aware of the potential of this research. In the case of food, consumers started to wonder about safety because they perceive that modern biotechnology is leading to the creation of new species.

Consumers frequently ask, “what is in it for me?”. Where medicines are concerned, many consumers more readily accept biotechnology as beneficial for their health (e.g. medicines with improved treatment potential). In the case of the first GM foods introduced onto the European market, the products were of no apparent direct benefit to consumers (not cheaper, no increased shelf-life, no better taste). The potential for GM seeds to result in bigger yields per cultivated area should lead to lower prices. However, public attention has focused on the risk side of the risk-benefit equation.

Consumer confidence in the safety of food supplies in Europe has decreased significantly as a result of a number of food scares that took place in the second half of the 1990s that are unrelated to GM foods. This has also had an impact on discussions about the acceptability of GM foods. Consumers have questioned the validity of risk assessments, both with regard to consumer health and environmental risks, focusing in particular on long-term effects. Other topics for debate by consumer organizations have included allergenicity and antimicrobial resistance. Consumer concerns have triggered a discussion on the desirability of labelling GM foods, allowing an informed choice. At the same time, it has proved difficult to detect traces of GMOs in foods: this means that very low concentrations often cannot be detected.

**Q14. How has this concern affected the marketing of GM foods in the European Union?**

The public concerns about GM food and GMOs in general have had a significant impact on the marketing of GM products in the European Union (EU). In fact, they have resulted in the so-called moratorium on approval of GM products to be placed on the market. Marketing of GM food and GMOs in general are the subject of extensive legislation. Community legislation has been in place since the early 1990s. The procedure for approval of the release of GMOs into the environment is rather complex and

basically requires agreement between the Member States and the European Commission. Between 1991 and 1998, the marketing of 18 GMOs was authorized in the EU by a Commission decision.

As of October 1998, no further authorizations have been granted and there are currently 12 applications pending. Some Member States have invoked a safeguard clause to temporarily ban the placing on the market in their country of GM maize and oilseed rape products. There are currently nine ongoing cases. Eight of these have been examined by the Scientific Committee on Plants, which in all cases deemed that the information submitted by Member States did not justify their bans.

During the 1990s, the regulatory framework was further extended and refined in response to the legitimate concerns of citizens, consumer organizations and economic operators (described under Question 13). A revised directive will come into force in October 2002. It will update and strengthen the existing rules concerning the process of risk assessment, risk management and decision-making with regard to the release of GMOs into the environment. The new directive also foresees mandatory monitoring of long-term effects associated with the interaction between GMOs and the environment. Labelling in the EU is mandatory for products derived from modern biotechnology or products containing GM organisms. Legislation also addresses the problem of accidental contamination of conventional food by GM material. It introduces a 1% minimum threshold for DNA or protein resulting from genetic modification, below which labelling is not required.

In 2001, the European Commission adopted two new legislative proposals on GMOs concerning traceability, reinforcing current labelling rules and streamlining the authorization procedure for GMOs in food and feed and for their deliberate release into the environment.

The European Commission is of the opinion that these new proposals, building on existing legislation, aim to address the concerns of Member States and to build consumer confidence in the authorization of GM products. The Commission expects that adoption of these proposals will pave the way for resuming the authorization of new GM products in the EU.

**Q15. What is the state of public debate on GM foods in other regions of the world?**

The release of GMOs into the environment and the marketing of GM foods have resulted in a public debate in many parts of the world. This debate is likely to continue, probably in the broader context of other uses of biotechnology (e.g. in human medicine) and their consequences for human societies. Even though the issues under debate are usually very similar (costs and benefits, safety issues), the outcome of the debate differs from country to country. On issues such as labelling and traceability of GM foods as a way to address consumer concerns, there is no consensus to date. This has become apparent during discussions within the Codex Alimentarius Commission over the past few years. Despite the lack of consensus on these topics, significant progress has been made on the harmonization of views concerning risk assessment. The Codex Alimentarius Commission is about to adopt principles on premarket risk assessment, and the provisions of the Cartagena Protocol on Biosafety also reveal a growing understanding at the international level.

Most recently, the humanitarian crisis in southern Africa has drawn attention to the use of GM food as food aid in emergency situations. A number of governments in the region raised concerns relating to environmental and food safety fears. Although workable solutions have been found for distribution of milled grain in some countries, others have restricted the use of GM food aid and obtained commodities which do not contain GMOs.

**Q16. Are people's reactions related to the different attitudes to food in various regions of the world?**

Depending on the region of the world, people often have different attitudes to food. In addition to nutritional value, food often has societal and historical connotations, and in some instances may have religious importance. Technological modification of food and food production can evoke a negative response among consumers, especially in the absence of good communication on risk assessment efforts and

## What is Genetic Modification?

Genetic modification involves altering an organism’s DNA. This can be done by altering an existing section of DNA, or by adding a new gene altogether. A gene is a code that governs how we appear and what characteristics we have. Like animals, plants have genes too. Genes decide the colour of flowers, and how tall a plant can grow. Like people, the characteristics of a plant will be transferred to its children the plant seeds, which grow into new plants. When a scientist genetically modifies a plant, they insert a foreign gene in the plant’s own genes. This might be a gene from a bacterium resistant to pesticide, for example. The result is that the plant receives the characteristics held within the genetic code. Consequently, the genetically modified plant also becomes able to withstand pesticides.

Not only genetic modification can be used to change animal and plant genes. Spontaneous changes, radiation, chemicals and traditional processing can also alter the characteristics of a plant or animal.

Spontaneous alteration of genes takes place naturally and sometimes with no effect. A spontaneous alteration can lead to the development of both positive and negative characteristics. The method is not particularly good if the intention is to create specific changes.

Radiation and chemicals can be used in order to effect gene alteration. Both elements are sometimes used in plant processing.

With genetic modification it is possible to transfer genes from one species to another. This is because all genes, be they human, plant, animal or bacterial are created from the same material. Genetic scientists therefore have a huge amount of genetic characteristics to choose from.

**Genetic modification of plants occurs in several stages:**

1. An organism that has the desired characteristic is identified.
2. The specific gene that produces this characteristic is located and cut out of the plant’s DNA.
3. To get the gene into the cells of the plant being modified, the gene needs to be attached to a carrier. A piece of bacterial DNA called a plasmid is joined to the gene to act as the carrier.
4. A type of switch, called a ‘promoter’, is also included with the combined gene and carrier. This helps make sure the gene works properly when it is put into the plant being modified. Only a small number of cells in the plant being modified will actually take up the new gene. To find out which ones have done so, the carrier package often also includes a marker gene to identify them.

cost/benefit evaluations.

**Q17. Are there implications for the rights of farmers to own their crops?**

Yes, intellectual property rights are likely to be an element in the debate on GM foods, with an impact on the rights of farmers. Intellectual property rights (IPRs), especially patenting obligations of the TRIPS Agreement (an agreement under the World Trade Organization concerning trade-related aspects of intellectual property rights) have been discussed in the light of their consequences on the further availability of a diversity of crops. In the context of the related subject of the use of gene technology in medicine, WHO has reviewed the conflict between IPRs and an equal access to genetic resources and the sharing of benefits. The review has considered potential problems of monopolization and doubts about new patent regulations in the field of genetic sequences in human medicine. Such considerations are likely to also affect the debate on GM foods.

**Q18. Why are certain groups concerned about the growing influence of the chemical industry on agriculture?**

Certain groups are concerned about what they consider to be an undesirable level of control of seed markets by a few chemical companies. Sustainable agriculture and biodiversity benefit most from the use of a rich variety of crops, both in terms of good crop protection practices as well as from the perspective of society at large and the values attached to food. These groups fear that as a result of the interest of the chemical industry in seed markets, the range of varieties used by farmers may be reduced mainly to GM crops. This would impact on the food basket of a society as well as in the long run on crop protection (for example, with the development of resistance against insect pests and tolerance of certain herbicides). The exclusive use of herbicide-tolerant GM crops would also make the farmer dependent on these chemicals. These groups fear a dominant position of the chemical industry in agricultural development, a trend which they do not consider to be sustainable.

**Q19. What further developments can be expected in the area of GMOs?**

Future GM organisms are likely to include plants with improved disease or drought resistance, crops with increased nutrient levels, fish species with enhanced growth characteristics

and plants or animals producing pharmaceutically important proteins such as vaccines. At the international level, the response to new developments can be found in the expert consultations organized by FAO and WHO in 2000 and 2001, and the subsequent work of the Codex ad hoc Task Force on Foods Derived from Biotechnology. This work has resulted in an improved and harmonized framework for the risk assessment of GM foods in general. Specific questions, such as the evaluation of allergenicity of GM foods or the safety of foods derived from GM microorganisms, have been covered and an expert consultation organized by FAO and WHO will focus on foods derived from GM animals in 2003.

**Q20. What is WHO doing to improve the evaluation of GM foods?**

WHO will take an active role in relation to GM foods, primarily for two reasons: (1) on the grounds that public health could benefit enormously from the potential of biotechnology, for example, from an increase in the nutrient content of foods, decreased allergenicity and more efficient food production; and (2) based on the need to examine the potential negative effects on human health of the consumption of food produced through genetic modification, also at the global level. It is clear that modern technologies must be thoroughly evaluated if they are to constitute a true improvement in the way food is produced. Such evaluations must be holistic and all-inclusive, and cannot stop at the previously separated, non-coherent systems of evaluation focusing solely on human health or environmental effects in isolation. Work is therefore under way in WHO to present a broader view of the evaluation of GM foods in order to enable the consideration of other important factors. This more holistic evaluation of GM organisms and GM products will consider not only safety but also food security, social and ethical aspects, access and capacity building. International work in this new direction presupposes the involvement of other key international organizations in this area. As a first step, the WHO Executive Board will discuss the content of a WHO report covering this subject in January 2003. The report is being developed in collaboration with other key organizations, notably FAO and the United Nations Environment Programme (UNEP). It is hoped that this report could form the basis for a future initiative towards a more systematic, coordinated, multi-organizational and international evaluation of certain GM foods.



# G.K. Test Series - 7

These questions are very useful for you

1. More dominant group of microor-ganisms in the soil is

- a) Bacteria
- b) Fungi
- c) Actinomycetes
- d) Protozoa

Answer: (a)

2. TDT is

- a) Thermal dealy time
- b) Thermal divide time
- c) Thermal death temperature
- d) Thermal death time

Answer: (d)

3. The first viral pathogen discov-ered was

- a) HIV
- b) TMV
- c) HPV
- d) YMV

Answer: (b)

4. Plague is caused by

- a) Bacterium
- b) Fungus
- c) Alga
- d) Virus

Answer: (d)

5. Selman A. Waksman was awarded Nobel Prize for the discovery of

- a) Penicilin
- b) Streptomycyes
- c) Streptomycin
- d) Penicillium

Answer: (c)

6. Robert Koch has been awarded Nobel Prize in 1905 for the discovery of

- a) Anthrax
- b) Cholera
- c) Tuberculosis

**Codes**

- A) a and b
- B) a and c
- C) a alone
- D) c alone

Answer: (b)

7. Organisms, which utilize simple inorganic compounds, are termed as

- a) Phototrophs
- b) Autotrophs
- c) Heterotrophs
- d) Necrotrophs

Answer: (b)

8. Cross wall formation during cell division is accelerated by

- a) Ribosomes
- b) Lysosomes
- c) Endosomes
- d) Mesosomes

Answer: (c)

9. The group of bacteria which includes obligate intracellular para-sites is

- a) Rickettsias
- b) Mollicutes
- c) Archaeobacteria
- d) Actinomycetes

Answer: (a)

10. Which of the following methods is employed for disposal of sludge that is contaminated with heavy metals heavily?

- a) Incineration
- b) Drying
- c) Landfilling
- d) Composting

Answer: (d)

11. The addition of sugar to an egg .....the heat stablity of protiens.

- a) increases
- b) decreases
- c) does not change
- d) increases and then decreases

Answer: (a)

12. Deterioration of fat in the pres-ence of oxygen is due to the enzyme

- a) Lipase
- b) Protease
- c) Lipoxygenase
- d) Peptidase

Answer: (c)

13. In cheese manufacture, curd is formed by the addition of

- a) Renin
- b) Protease
- c) Peptidase
- d) Amylase

Answer: (a)

14. Excessive intake of polished rice causes deficiency of

- a) Vitamin A
- b) Vitamin B1
- c) Vitamin D
- d) Vitamin K

Answer: (b)

15. The fat content of toned milk should be

- a) less than 1.5%
- b) less than 3%
- c) more than 3%
- d) more than 5%

Answer: (c)

16. Bitter pit is

- a) Chemical injury
- b) Physiological injury
- c) Mechanical injury
- d) Microbial disease

Answer: (b)

17. What is the TSS of fruit syrup?

- a) 20%
- b) 45%
- c) 65%
- d) 80%

Answer: (c)

18. Diethyl pyrocarbonate is used as a preservative for

- a) Spices
- b) Fruit juices
- c) Nuts
- d) Vegetables

Answer: (b)

19. A toxic element which may con-taminate food is

- a) Zinc
- b) Copper
- c) Lead
- d) Calcium

Answer: (c)

20. Tofu is a processed product of

- a) Kidney bean
- b) navy bean
- c) Broad bean
- d) Soyabean

Answer: (d)

21. Appertizing is a process called canning and is named after

- a) Nicholas Apert
- b) Michael Apert
- c) John Apert
- d) Williams Apert

Answer: (a)

22. Consider the following state-ments:

- A. Butter is an example for oil in water emulsion.
- B. Milk is an example for water in oil emulsion.

**Codes**

- a) Statement A is correct and B is wrong
- b) Statement B is correct and A is wrong
- c) Statements A and B are wrong
- d) Statements A and B are correct

Answer: (c)

23. Consider the following state-ments:

- A. Soyabean contains 40% protien and 20% fat
- B. The quality of protien is poor be-cause of the process of the trypsin inhibitor.

**Codes**

- a) Statement A is correct and the explanation given in B is wrong
- b) Statement A is correct and the explanation given in B is correct
- c) Statements A and B are correct
- d) Statements A and B are wrong

Answer: (c)

24. Choose the best answer.

- a) Aflatoxin
- b) Patulins
- c) Aminotoxin
- d) Paratoxin

Answer: (a)

25. Choose the correct answer. Decomposition of carbohydrates by microorganisms or enzymes is called as

- a) Putrefaction
- b) Fermentation
- c) Canning
- d) Dextrinisation

Answer: (b)

26. Consider the following state-ments:

- A. Freezing at very low temperature (- 60 °C) is cryogenic freezing.
- B. The refrigerants used are oxygen and neon

**Codes**

- a) A and B are true
- b) A is true, but B is false
- c) B is true, but A is false
- d) A and B are false

Answer: (d)

27. Consider the following statements:

- A. Milk is rich in calcium and vitamin D.
- B. On heating milk combines with

casein and is converted to calcium caseinate.

**Of these**

- a) Statement A is correct and B is wrong
- b) Statements A and B are correct
- c) Statements A and B are wrong
- d) Statement A is wrong and B is correct

Answer: (b)

28. Freeze crack is seen when foods are frozen by

- a) Air freezing
- b) Contact freezing
- c) Immersion freezing
- d) Cryogenic freezing

Answer: (d)

29. Hedonic rating test is used to measure

- a) sensitivity
- b) preference
- c) difference
- d) quality

Answer: (b)

30. Puffed products are dried to a moisture content less than

- a) 12%
- b) 8%
- c) 4%
- d) 16%

Answer: (b)

31. In which region of India, is shift-ing cultivation widely followed?

- a) South
- b) North
- c) North-East
- d) North-West

Answer: (c)

32. The toxic substance gossypol is formed in

- a) Rapeseed
- b) Linseed
- c) Cotton
- d) Fababean

Answer: (c)

33.Pigeonpea sterility mosaic is transmitted by

- a) Aceria cajani
- b) Besmia tabaci
- c) Myzus persicae
- d) Orosius albicinctus

Answer: (a)

34. The state which ranks first in sugarcane productivity in India is

- a) Maharashtra
- b) Uttar Pradesh
- c) Tamilnadu
- d) Karnatka

Answer: (b)

35. Frequent ploughing of soil de-stroys

- a) Soil texture
- b) Soil structure
- c) Soil colour
- d) Soil type

Answer: (a)

36. Potato late blight is caused by

- a) Fungus
- b) Bacterium
- c) Virus
- d) Actinomycete

Answer: (a)

37. Leaf spot with concentric zona-tions are observed in

- a) Cercospora
- b) Pyricularia
- c) Helminthosporium
- d) Alternaria

Answer: (d)

38. Banana bunchy top is caused by

- a) Fungus
- b) Bacteria
- c) Virus
- d) Phytoplasma

Answer: (c)

39. Seasane phyllody is transmitted by

- a) White fly
- b) Aphid
- c) Jassid
- d) Lace wing

Answer: (c)

40. Fungi belonging to which sub-division is called as sac fungi?

- a) Basidiomycotina
- b) Ascomycotina
- c) Mastigomycotina
- d) Deuteromycotina

Answer: (b)

41. In India, which state is popularly named as Soya State?

- a) Andhra Pradesh
- b) Madhya Pradesh

- c) Uttar Pradesh
- d) Tamilnadu

Answer: (b)

42. The highest protein is found in seeds of

- a) Begal gram
- b) Green gram
- c) Red gram
- d) Soyabean

Answer: (d)

43. Most serious disease of sugar-cane is

- a) Red stripe
- b) Red rot
- c) Wilt
- d) Smuti

Answer: (b)

44. The most common amendment used for reclamation of alkali lands is

- a) Lime
- b) Gypsum
- c) Tank silt
- d) FYM

Answer: (b)

45. Biofertilizer suitable for red gram is

- a) Rhizobium
- b) Azospirillum
- c) Azolla
- d) Azotobacter

Answer: (a)

46. Cotton is susceptoible to drift of

- a) Lasso
- b) Stomp
- c) Machete
- d) 2,4-D

Answer: (d)

47. The appearance of an organism in a given environment is called as

- a) genotype
- b) genome
- c) idiotype
- d) phenotype

Answer: (d)

48. A windmill suitable for water lifting is

- a) single blade type
- b) double blade type
- c) triple blade type
- d) multiple blade type

Answer: (d)

49. The major protien in wheat flour is

- a) zein
- b) gluten
- c) oryzenin
- d) hordenine

Answer: (b)

50. Type of moisture that can be removed by common drying tech-niques is

- a) equilibrium moisture
- b) total moisture
- c) free moisture
- d) bound moisture

Answer: (d)

51. Union government on 18 April 2012 decided to liberalise the exter-nal commercial borrowing (ECB) norms for the power sector. Power sector companies will now be able to use up to what per cent of ECB loans to refinance their rupee debt?

- a. 35%
- b. 40%
- c. 53%
- d. 27%

Answer: (b)

52. As per the government data released on 18 April 2012, retail inflation shot up to what per cent in March 2012 because of higher prices of milk, vegetables, protein-based items and edible oil products?

- a. 9.47%
- b. 8%
- c. 7.6%
- d. 5%

Answer: (a)

53. International Monetary Fund (IMF) in its World Economic Outlook (WEO), released ahead of the IMF-World Bank Spring Meetings, marginally lowered India's economic growth forecast to what per cent in 2012?

- a. 4%
- b. 3.5%
- c. 6.9%
- d. 7.3%

Answer: (c)

54. Reserve Bank of India (RBI) on 17 April 2012 instructed commercial banks to reduce their exposure to

gold loan companies to what per cent of their capital funds from the existing 10%?

- a. 9%
- b. 8.3%
- c. 4.1%
- d. 7.5%

Answer: (d)

55. Commerce Secretary on 19 April 2012 announced that India sur-passed the export target of \$300 billion for 2011-12. However due to surging imports India recorded the highest ever trade deficit. What was the trade deficit recorded for the 2011-12?

- a. \$184.9 billion
- b. \$150 billion
- c. 4167.4 billion
- d. \$142 billion

Answer: (a)

56. Union Government decided on 1 million Cap on External Commercial Borrowing for which of the following sectors?

- a. Handicraft & Small Industries sector
- b. Power sector
- c. Aviation sector
- d. Insurance sector

Answer: (c)

57. Consider the following statements and using the code given below identify the personality with whom these state-ments are associated

- 1. He is the Chairman of Hindustan Zinc Limited
- 2. He also heads MALCO, Sterlite Iron and Steel Company Ltd and Sterlite Infrastructure Pvt. Ltd
- 3. He is the son of Vedanta Group Chairman Anil Agarwal
- 4. He has recently picked up 60 per cent stake in Chennai-based nascent Primex Healthcare

**Codes**

- (a) Agnivesh Agarwal
- (b) Ramesh Agarwal
- (c) Brajesh Agarwal
- (d) Ajay Agarwal

Answer: (b)

58. Which of the following Indian companies has announced to supply Cholera vaccines to the African nation Haiti?

- (a) Ranbaxy
- (b) Pfizer
- (c) Glaxo
- (d) Shantha Biotechnics.

Answer: (d)

59. Samsung, which announced to launch its new version of the 7-inch tablet in Indian market in early May this year, is headquartered in \_ \_ \_ \_

- (a) South Korea
- (b) North Korea
- (c) Taiwan
- (d) Thailand

Answer: (a)

60. Which one of the following given statements is wrong?

- (a) IDBI is a public sector bank
- (b) It has recently launched a Swiss Franc (CHF) denominated bond for an amount of 620 crore Rupees
- (c) RM Malla is presently the CMD of the bank
- (d) The bank provides loan only to the government

Answer: (d)

61. Which one of the following per-sonalities was appointed as the MD of Sun TV?

- (a) K Vijay Kumar
- (b) Dayanidhi Maran
- (c) Vinod Goenka
- (d) None of the above

Answer: (a)

62. Indian commerce and industry minister Anand Sharma has recently said that India is committed to take the Doha round to a successful conclusion.What is Doha round about?

- a. Trade negotiations
- b. Nuclear treaty
- c. Oil accord
- d. Peace negotiations

Answer: (a)

63. What is the name of the cyclone that has hit Fiji recently?

- a. Katrina
- b. Tomas
- c. Puppet
- d. Swath

Answer: (b)

64. India is planning to hold highlevel talks with many stake holders to solve the Afghan problem. Identify latest countrysy it is holding talks with?

- a. Pakistan
- b. The US
- c. Germany
- d. Iran

Answer: (d)

65. Cardinal Sean Brady, head of a Catholic Church, has been accused for his role in the child abuse scandal. Which country does he belong to?

- a. Ireland
- b. Switzerland
- c. Italy
- d. Lebanon

Answer: (a)

66. Varun Gandhi has been made an offi ce-bearer in BJP's new team of leaders. What is his post?

- a. Vice resident
- b. General secretary
- c. Secretary
- d. None of the above

Answer: (c)

67. A shoot-out recently took place at a famous science research centre in India. Which organisation is it?

- a. BARC
- b. ISRO
- c. TIFR
- d. IISc

Answer: (b)

68. Whose court martial has been initiated in Sri Lanka?

- a. Rienzi Arsakularathne
- b. Mahinda Rajapaksa
- c. Sarath Fonseka
- d. Jagath Jayasurya

Answer: (c)

69. Which Bill was deferred at the last moment from being placed in the Lok Sabha by the government due to stiff opposition by all opposi-tion parties?

- a. Women's Reservation Bill
- b. Civil Liability for Nuclear Damage Bill
- c. Finance Bill
- d. SC/ST Reservation (Amendment) Bill

Answer: (b)

70. Which Bill has been cleared by the cabinet to be introduced in the Parliament?

- a. Women's Reservation Bill
- b. Civil Liability for Nuclear Damage Bill
- c. Foreign Educational Institutions Bill
- d. Finance Bill

Answer: (c)

71. India's Prithvi missile missed to reach its target height in what is seen as a big setback to putting in place a credible ballistic missile defence (BMD) shield. What height was Prithvi supposed touch?

- a. 120 km
- b. 110 km
- c. 125 km
- d. 93 km

Answer: (b)

72. Violent protests are going on in Thailand with the call for an immedi-ate dissolution of the House of Representatives and fresh elections. Who is the prime minister of Thai-land?

- a. Thaksin Shinawatra
- b. Abhisit Vejjajiva
- c. Prem Tinsulanonda
- d. B