

Srishti Rana crowned Miss Asia Pacific World 2013

India's Srishti Rana has been crowned Miss Asia Pacific World 2013 by last year's winner Himangini Singh Yadu at a glittering ceremony [here](#).



This is India's second win in a row at the Miss Asia Pacific World pageant. The 21-year-old from Faridabad saw off competition from 49 contestants from different countries, which includes first runner up from Egypt- Meriam George and Kazakhstan's Evgenia Klishina, who was the second runner up. Srishti's peacock-inspired gown also won her the Best National costume award, for depicting the national bird of India. Post Srishti's win, many took to Twitter to congratulate her. "Congratulations Srishti Rana for making India proud," a post read. Another said, "Srishti Rana mesmerized the jury and the audience with her poise, beauty and intelligence and came out as a winner." Yesteryear actress Zeenat Aman was the first Indian to win the title of Miss Asia Pacific back in 1970, while model Tara Anne Fonseca was crowned winner in 1973. Bollywood actress-producer Dia Mirza won the title in 2000. Actress Namrata Shirodkar was named the first runner-up of the 1993 edition of the competition.

Carbon worlds may be waterless: NASA study

Planets rich in carbon, including so-called diamond planets, may lack oceans, according to a [NASA](#) study. Our Sun is a carbon-poor star, and as result, our planet Earth is made up largely of silicates, not carbon.

Stars with much more carbon than the Sun, on the other hand, are predicted to make planets chock full of carbon, and perhaps even layers of diamond.

By modelling the ingredients in these carbon-based planetary systems, the scientists determined they lack icy water reservoirs thought to supply planets with oceans.

“The building blocks that went into making our oceans are the icy asteroids and comets,” said [Torrence Johnson](#) of NASA’s [Jet Propulsion Laboratory](#) in Pasadena, California, who presented the results at the American Astronomical Society Division of Planetary Sciences meeting in Denver. “If we keep track of these building blocks, we find that planets around carbon-rich stars come up dry,” he said. Johnson and his colleagues said the extra carbon in developing star systems would snag the oxygen, preventing it from forming water.

“It’s ironic that if carbon, the main element of life, becomes too abundant, it will steal away the oxygen that would have made water, the solvent essential to life as we know it,” said [Jonathan Lunine](#) of [Cornell University](#), Ithaca, a collaborator on the research. Researchers identify exoplanets by first looking for those that are situated within the “habitable zone” around their parent stars, which is where temperatures are warm enough for water to pool on the surface.

But even if a planet is found in this so-called “Goldilocks” zone, where oceans could, in theory, abound, is there actually enough water available to wet the surface? Johnson and his team addressed this question with planetary models based on measurements of our Sun’s carbon-to-oxygen ratio. Our Sun, like other stars, inherited a soup of elements from the [Big Bang](#) and from previous generations of stars, including hydrogen, nitrogen, silicon, carbon and oxygen.

These models accurately predict how much water was locked up in the form of ice early in the history of our solar system, billions of years ago, before making its way to Earth.

Comets and/or the parent bodies of asteroids are thought to have been the main water suppliers, though it is debated. The objects are said to have begun their journey from far beyond Earth, past a boundary called the “snow line,” before impacting Earth and depositing water deep in the planet. When the researchers applied the planetary models to the carbon-rich stars, the water disappeared. “There’s no snow beyond the

snow line,” said Johnson.

“All rocky planets aren’t created equal. So-called diamond planets the size of Earth, if they exist, will look totally alien to us: lifeless, ocean-less desert worlds,” said Lunine.

Now, a machine that eats up garbage

A Bangalore based firm has come out with a solution to the mounting garbage problem. The technology developed by the company- Alchemy- reduces tonnes of garbage into a few litres of liquid.

Spurthi Industries Private Limited at Peenya Industrial Area gave a live demonstration of Alchemy to Mayor B S Sathyanarayana, corporators and several others on Wednesday. The machine has a cylinder in which one tonne of garbage is dumped and 25 litres solution is added. It consumes the waste leaving about 100 grams of liquid.

During the demonstration at least 500 kg of waste was filled in the cylinder and the solvent was added. In a short time, about 100 grams of liquid came out without generating any odour or smoke.

Speaking to Deccan Herald, the director of Spurthy Industries said the machine used on Wednesday was tailor-made only for demonstration purpose while its capacity can be enhanced to dispose at least 2,500 tonnes a day. He refused to divulge details of the solvent saying that it is his trade secret.

He also did not reveal the price of the machine saying that the company has not fixed the price so far. Overwhelmed by the demonstration, Mayor said such machines would be set up at 10 places.

Hanjer project in soup

The Bruhat Bangalore Mahanagara Palike (BBMP) may scrap the contract given to Hanjer Biotech if the firm fails to set up its garbage processing unit on the outskirts of Bangalore after the final notice is issued, said Mayor B S Sathyanarayana.

Speaking about the Hanjer Biotech, the Mayor said several notices were issued to the firm, but the response was not satisfactory as it has not started its operations

despite an urgency in the City to tackle garbage problem.

Sathyanarayana said: "People coming to Bangalore to set up their garbage disposal units set their eyes only on getting land free of cost. We offered land and other facilities but the firm did not show interest."

The Mayor and corporators were going gaga about the Hanjer Biotech and projected it as an important firm to bail out Bangalore from garbage crisis. Recently, the Mayor along with about 200 people had even visited Salem in Tamil Nadu in four buses to see the 'success story' of Hanjer Biotech. It was projected that Hanjer has revolutionised Salem by its unique garbage disposal mechanism.

Sources in the BBMP said the contract was given to Hanjer to set up its mixed waste processing unit on an 'as is where is' basis, which means that it will have to develop the land properly without demanding anything from the Palike. Sources added that the land provided to Hanjer already has a huge heap of garbage along with uneven surface. To clear waste, the firm may have to invest at least Rs three crore to Rs four crore.

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Maintain fixed tenure for bureaucrats: SC

[hindu]

In a path-breaking verdict, the Supreme Court on Thursday said bureaucrats should not act on verbal orders given by political bosses as it sought an end to frequent transfers and suggested a fixed tenure to

insulate them from political interference.

Suggesting sweeping reforms in the functioning of bureaucracy, a bench

headed by Justice K.S. Radhakrishnan said Parliament must enact a law to

regulate postings, transfers and disciplinary action against bureaucrats.

Holding that much of the deterioration in bureaucracy is because of

political interference, it said that civil servants should not act on

verbal orders given by political executives and all actions must be

taken by them on the basis of written communication.

The bench also comprising justice P.C. Ghose said giving a fixed minimum

tenure to a civil servant will not only promote professionalism and

efficiency, but also good governance.

It asked the Centre and all State governments along with Union Territories to issue directions within three months for

providing fixed

tenure to civil servants.

The bench also said Civil Services Board be constituted at the Centre and State-levels.

The verdict, which is on the line of apex court's earlier order on

police reforms for giving fixed tenure to senior police officers in

Prakash Singh case, will go a long way in giving freedom and independence to the functioning of bureaucracy.

The judgement comes close on the heels of controversies surrounding

Ashok Khemka, IAS officer of Haryana cadre over DLF-Robert Vadra land

deal, and Durga Sakhti Nagpal, U.P. cadre IAS officer, who was targeted

by the State government for alleged misconduct.

The apex court passed the verdict on a PIL filed by 83 retired bureaucrats including former Cabinet Secretary T.S.R.

Subramanian

seeking its directions for insulating bureaucracy from political interference.

The petitioners also include former Indian Ambassador to the U.S. Abid

Hussain, former Chief Election Commissioner N. Gopalaswami, former

Election Commissioner T.S. Krishna Murthy, former IPS officer Ved

Prakash Marwah, and former CBI directors Joginder Singh and D.R.

Karthikeyan.

Farmers to protest against Gadgil report

Allege bias in labelling 123 villages as ecologically fragile

[hindu]

Farmers' organisations led by the Indian Farmers' Movement (Infam) have decided to stage dharnas and take out protest marches on November 1 in Kozhikode and Malappuram districts to protest against the recommendations of the Kasturirangan and Madhav Gadgil panel reports which they believe are a threat to their livelihood and are aimed at forcing farmers in the Western Ghats regions to abandon their land.

Leaders of the joint action council formed by these organisations also alleged at a press conference here on

Wednesday, that there was clear discrimination in labelling 123 villages as ecologically fragile land where strict controls on farming and building activities have been recommended.

As example they pointed out that ecologically sensitive areas in and around Wagamon and Silent Valley had been exempted from this category.

Population density

They also pointed out that the Kasturirangan report had labelled as ecologically fragile land 123 villages where density of population was as high as 250 though the reports stated that places having population density above 100 should not be treated as ecologically fragile land.

The inclusion of rubber, tea, coffee, pepper, cashew, cardamom, arecanut and coconut on the list of commercial crops that should not be allowed in protected parts of Western Ghats would ruin the State's economy as also the farmers, they said and added it had been pointed out by Coffee Board, Spices Boards, and many agricultural scientists.

The farmers action council also questioned the validity of the Kasturirangan recommendation that chemical fertilizers and pesticides should not be allowed and said many scientists were of the view it was not advisable to abandon their use. The farmers' action council alleged that the ultimate aim of the Kasturirangan and Gadgil panel reports was

eviction of farmers from hill ranges.

The ban on

cash crops recommended in these reports and attacks from wild animals

would force farmers to leave the land in hill ranges which they had been

cultivating for decades and on which they had clear ownership rights,

the council said.

A tale of two handshakes

[hindu]

While the Prime Minister fanned the warmth and strength of India's relationship with Russia, he also conveyed the message that ties with China can continue to grow if impediments are dealt with speedily

Wittingly or unwittingly, Prime Minister Manmohan Singh gave two

different meanings to handshakes when he visited Moscow and Beijing last

week. At the Moscow State Institute of International Relations, Dr.

Singh said on October 21: "Every handshake reveals the warmth of the

ties between our two people. Together, they create an unmatched platform

for the future." Two days later, in Beijing, the Prime Minister said

after talks with Premier Li Keqiang: "We account for 2.5 billion people. When India and China shake hands, the world takes notice." The first handshake referred to the comfort of a strategic relationship that had defined India's diplomacy over the years; the second placed India and China in the domain of "re-emerged" nations, whose import the world is still contending with. At a time when considerable time and energy are being expended in pushing China and India to take the stage as rivals, the repeated contacts between the two countries take some of the sting out of this narrative. With the United States keen on curbing Chinese influence, India is seen as the obvious counter-weight to China, a prospect Delhi has rejected time and again in public. In nuanced references, Dr. Singh made it plain last week that the India-Russia handshake was time-tested; the one with China was new and continued to attract global attention given the economic strength of the two Asian nations. The Prime Minister's two terms at the helm will be known for a strategic embrace of the U.S. and its policies, but his praise for Russia and what it had done for India was generous and full-throated. "India has benefited enormously from Russian support in every aspect of India's national development efforts – be it the development of heavy industry, the power sector, our space programme or... our defence needs... Russia has stood by India at moments of great international challenge, when our

own resources were limited and our friends were few... it is this last fact that Indians will never forget," Dr. Singh said.

Special and privileged

Referring to the relationship with Russia as special and privileged, the Prime Minister was generous in his praise for Moscow. "Russia offered us partnership in nuclear energy when the world still shunned nuclear commerce with us. I take particular joy in informing this audience that the first unit of the Kudankulam nuclear power plant, built with Russian assistance, went critical in July this year and that the second one should be commissioned early next year. The Indian oil company ONGC's largest overseas presence is in Russia," he stressed.

Beyond the comfort zone of Russia, the Prime Minister, who flew to Beijing from Moscow, reflected a new confidence when it came to raising difficult issues in public with China. Given that this was his third meeting in 2013 with the top Chinese leadership, his comments should silence some of his harsh, hawkish critics at home.

After listing a host of common concerns and the need for a joint approach, Dr. Singh possibly became the first Indian leader to put his concerns to the Chinese publicly on Chinese soil. Usually, these concerns are placed off-the-record to accompanying Indian mediapersons.

"Naturally, there are also concerns on both sides – whether it is incidents in the border region, trans-border rivers or trade imbalances.

Our recent experiences have shown that these issues can become impediments to the full exploitation of the opportunities for bilateral and multilateral cooperation between India and China...," he said at the Chinese Communist Party's central party school. So, recent tensions on the India-China boundary, concerns about Chinese activity on the Yarlung Zangbo-Brahmaputra river system, as well as issues of trade imbalance figured in these full-spectrum remarks.

Beyond bilateralism

Going beyond the pure bilateral domain, Dr. Singh spoke about the need to put in place a rule-based security architecture which, he hoped, would promote security and stability in the larger Asia-Pacific region.

"Above all, India and China need a stable, secure and prosperous Asia-Pacific region. The centre of gravity of global opportunities and challenges is shifting to this region. In the coming decades, China and India, together with the United States, Japan, Korea and the ASEAN community, will be among the largest economies in the world." In an obvious reference to China's many unresolved maritime disputes with its neighbours, Dr. Singh said: "While this region embodies unparalleled dynamism and hope, it is also one with unsettled questions and unresolved disputes. It will be in our mutual interest to work for a cooperative, inclusive and rule-based security architecture that enhances our collective security and regional and global stability."

A job politely but directly done. There was no anger here,

just an expression of concern. Given India's and China's high stakes in peace and stability, raising concerns before a key audience in China is surely something that Indians concerned about China should appreciate.

Setting out a larger strategic direction for bilateral relations, Dr.

Singh said: "More than ever before, the world needs both countries to

prosper together. We were not destined to be rivals, and we should show

determination to become partners. Our future should be defined by

cooperation and not by confrontation. It will not be easy, but we must

spare no effort."

After visits to the U.S., Russia and China, the Prime Minister's high

noon of foreign policy is, clearly, coming to a close. The intent of his

remarks in Russia and China could well indicate his desire to spell out

his legacy, and a direction for the future. While he fanned the warmth

and strength of India's relationship with Russia, Dr. Singh also

conveyed a solid message that our ties with China can continue to grow

if impediments are dealt with speedily. A clearer message to China and

its leadership could not have been conveyed.

As India hurtles to a fractious and noisy election, Dr. Singh's China

visit has passed without cries of a "sell-out" from the principal

opposition, whose interest in global politics and bilateral relations

appears to be both selective and limited. At a time when Russian and

Indian leaders meet annually in Moscow or New Delhi, and there are repeated bilateral interactions with the Chinese, there is need to move beyond immediate outcomes in the form of agreements in assessing the quality of bilateral relationships.

Not a dampener

Although hopes of a possible deal on Kudankulam getting two additional Russian nuclear reactors were raised before Dr. Singh left for Moscow, in the end these did not materialise. Given the complex and tortuous nature of concerns surrounding any new deal, the lack of agreement hardly comes as a surprise. In a situation where both Russia and India remain engaged in dialogue, the inability to reach an agreement should not come as a dampener.

The media, perhaps, need to shed its obsession with the "immediate" in India's dealings with key nations and instead look at the long-term trajectory of relations with these countries. Engagement, it seems, is going to be a continuous process. Days after Dr. Singh concluded his visit to Russia and China, there will be a dialogue of Russia-India-China Foreign Ministers on the sidelines of the Asem (Asia-Europe Meeting) Foreign Ministers' meeting in New Delhi on November 10-11, another sign of consistent engagement. That is the nature of modern-day diplomacy. It's never-ending.

A tiny step for a giant leap?

[hindu]

There are divisions over whether ambitious science missions like the Mars project are worth the investment by a country where large sections do not have basic amenities.

Even as top ministers sparred with each other over there not being enough toilets for the country, India is making an open attempt to beat its Asian rival, China, in reaching distant Mars riding on the Mars Orbiter Mission.

The irony cannot be missed. Looking at the country's state of abject poverty, malnutrition and underdevelopment, some have questioned the profligacy of India heading to the Red Planet on a mission that costs Rs.450 crore.

As questions are being asked, is India's mission to Mars a giant leap or tiny step?

The criticism

Jean Drèze, a development economist, famously said, "I don't understand the importance of India sending a space mission to Mars when half of its children are undernourished and half of all Indian families have no

access to sanitation.” Others who believe in pushing the frontier and going where no Asian nation has ever gone before, like Dr. K. Radhakrishnan, Chairman of the Indian Space Research Organisation (ISRO), Bangalore, say “the Mars mission is a historical necessity, since after having helped find water on the moon, looking for signatures of life on Mars is a natural progression.”

Later this month, India will send a 1,350-kg unmanned satellite aptly called “Mangalyaan” which means “Mars craft” made by a team of 500 scientists from ISRO in a record 15 months, the shortest time frame for any of the over 100 space missions India has ever undertaken. In a manner that has similarities with the clarion call given by John F. Kennedy in 1961 that Americans will land on the moon, Prime Minister Manmohan Singh, in his Independence Day speech on August 15, 2012, described the Mangalyaan mission as a “huge step for us,” proclaiming that “our craft will soon go to Mars and collect important scientific information.”

The modest mission ISRO acknowledges is more of a “technology demonstrator” but the Rs.150-crore spacecraft made in India by Indians and to be launched from Indian soil using an Indian rocket will also carry five homemade scientific instruments which will study the thin Martian atmosphere looking for signatures of life.

In this 100-metre dash to meet the deadline for the November launch, the risks are high. Since 1960, about 45 missions to Mars have been launched with a third having ended in disaster and no single

nation
succeeding in its maiden venture.
Calling it "fantastic," NASA chief General Charles Bolden,
talking to
NDTV endorsed India's maiden mission to Mars saying, "It's
always
exciting to have as many countries as possible participating
in
exploration efforts, particularly Mars ... a place that we don't
know a
lot about. We are providing support through communications,
data
transmission. We are in partnership."
The rush to beat the 2013 deadline has been both a
geopolitical and
planetary necessity. Many viewed the Prime Minister's
announcement as
the start of an Asian space race, since this could well be a
daring
100-metre dash in India's marathon to reach the Red Planet,
especially
when in November 2011, the maiden Chinese orbiter to Mars
called
Yinghuo-1 piggybacked on the Russian satellite Phobos Grunt,
ended in
disaster after it failed to be boosted into space. This
failure now gave
India an opportunity to possibly march ahead of not only China
but even
Japan, which had made an unsuccessful attempt in 1998. In most
other
aspects of space fairing China has already beaten India, so
here was an
opportunity for the elephant to march ahead of the dragon. Dr.
Radhakrishnan discounts this view saying, "We are not racing
with
anyone" but accepts that "boosting national pride" is a big
driver for
such bold and ambitious missions. The more rational reason
given for
"fast-tracking" this mission is that 2013 offered an opportune

launch

window to go to Mars since planetary juxtapositions permit such attempts

once every 26 months.

So later this month, even as some 600 million people sit under the sky

for their ablutions they could possibly catch a glimpse of India's

smaller rocket, the Polar Satellite Launch Vehicle, begin what would be

India's long march of sending a robot some 400 million kilometres away

to study Mars in what is being considered the cheapest interplanetary

mission ever.

Science and cyclones

To some diehard critics of the Indian Mars mission, the recent Phailin

cyclone in Odisha should be an eye-opener, where the loss of life was a

mere 44. In comparison, about 10,000 people lost their lives in the

supercyclone of 1999 and 3,00,000 people died in the Sunderbans and

Bangladesh in the Bholá Cyclone of 1970. The crucial difference now is

that India today had as many as half-a-dozen satellites, all made by

ISRO, keeping a constant vigil on the cyclone as it roared over the Bay

of Bengal, while the string of Doppler Radars that line the coast along

the Bay of Bengal also helped. None of this cutting-edge capability

would have been possible had the government heeded the advice of the

critics who consider India's investment in space a waste of resources.

According to ISRO, for every rupee spent the agency has given back more

than two in return. At the same time, how do you put a price

on the over

10,000 lives saved in Odisha during Phailin.

So who knows? This small step by India could well turn out to be one

giant leap for mankind in answering that big question: are we alone in

the universe?

The culture and crisis of kushti

[hindu]

Grapplers from Pakistan and Iran have a large fan following in rural Maharashtra.

The board above the school entrance says *taleem* (Urdu for “education”). But the first thing you see within is an image or statue of Hanuman, the deity of *pehelwans* here. The culture is a colourful blend. Wrestling schools in rural western Maharashtra are called *taleems*, not *akharas*. That’s a throwback to pre-Partition Punjab with whose *taleems* they developed strong links over a hundred years ago. Particularly in the

time of Shahu Maharaj, ruler of the erstwhile princely state of

Kolhapur. Well-known as a social reformer, he was also a great wrestling

enthusiast who brought grapplers from all over undivided India, many of

them from the Punjab, to Kolhapur.

To this day there are huge tournaments in rural western Maharashtra

which feature top wrestlers from Pakistan, Iran, Turkey, and

even some

African nations. The fighters from Pakistan and Iran have a fan-following among the overwhelmingly Hindu male audiences here. "The crowds are riveted by the outside wrestlers," says Vinay Kore, MLA (and former minister) from Kolhapur. Mr. Kore, who heads the Warana cooperative sugar factory and dairy complex, is the chief organiser of the biggest international wrestling tournament in the State – the one at Warananagar in Kolhapur district which has the largest wrestling *maidan* in Maharashtra. It is held on December 13 every year.

"Up to three lakh people can gather," says Mr. Kore.

"Sometimes there

are huge headaches with visas. One year, visas for the Pakistanis came

very late. Their wrestlers had to then fly from Islamabad to Delhi, from

there to Pune, from where we picked them up and drove them to Warana.

Meanwhile, a crowd of lakhs waited patiently for them for 12-13 hours."

In instruction, a blend

At the *taleems*, Maharashtra's wrestling gurus lay emphasis on an

ethical and moral instruction that blends the spiritual and the secular.

Many teachers tell their students about the legendary Gama *pehelwan*,

the one undefeated wrestler of his time who vanquished the world's

greatest. Gama, born Ghulam Muhammad in the Punjab, was a Muslim who

stayed on in Pakistan after 1947. Teachers tell their students of the

time he stood like a rock outside the colony of his Hindu neighbours,

facing down a violent mob during Partition riots. "That is how a

wrestler should be," is the refrain.

"The great teachers are all agreed that ethical training is crucial,"

says Appasaheb Kadam, one of Maharashtra's wrestling greats, at his *taleem* in Kolhapur town. "A wrestler without a moral grounding will be a disaster," he says. *Peheiwans* in Maharashtra, many point out, haven't earned the dubious reputation those in some other States have.

There is also a culture of local hospitality and generosity around the

sport. Whether at the Kundal or the Warananagar mega-events, people want

us to understand this. "You should know that the lakhs flocking to the

event from outside are treated as guests by the villagers here. Hundreds

of dinners are prepared at local homes for the visitors."

The *taleems* are an assembly of twisted and devastated ears.

"The

bona fide certificate of the wrestler," chuckles legendary wrestler,

former Olympian and guru, Ganpatrao Andhalkar. The owners of those

battered lobes, teachers included, are all from rural families. Farmers

or labourers. This is particularly true of western Maharashtra.

"*Kushti*, sugarcane fields and *tamasha* (a Marathi folk theatre form) are closely linked," says Asiad, Commonwealth Games and national medallist Kaka Pawar at his *taleem* in Pune. "Why *tamasha*? Both rest on the performers' discipline and crowd support."

While the audiences are largely Hindu, wrestling itself shows more

diversity than in the past. Where once Marathas dominated, there are now

champions from the Dhangar (shepherd) community. In Sholapur, a top

wrestling district, young champions are emerging in the Muslim community.

The gurus of Maharashtra's wrestling culture are an articulate

and

analytical lot. They dismiss the brief debate on whether wrestling could be dropped from the Olympics. "They include sports played by 30

nations," scoffs Kadam. "Wrestling is a culture in 122 countries. Can they drop it?"

They're more concerned about how wrestling is treated in Maharashtra. Across the many *taleems* and wrestlers we visited, the complaints were similar. The agrarian States of Punjab and Haryana treat wrestling far more seriously than rapidly urbanising Maharashtra.

"There, recognition with jobs at decent levels in the police and other security forces are quick," says one teacher. "Here, those who quit *kushti* become labourers." Some gifted wrestlers have ended their careers as watchmen at sugar factories.

Political interest

The political class is seen as opportunistic. "They used to come because *kushti* brings the crowds." But though they become the heads of federations, nothing

happens for the sport. "Union Minister Sharad Pawar is the head of the Wrestling Federation in this State," says one organiser. "We know that. I

wonder if he knows or remembers it." Another says: "We have two former wrestlers as MLAs. They don't even look our way."

Changes in society and culture, the decline of small-holder farming, a

recurring water-crisis and State neglect have combined to undermine what

is perhaps the most deep-rooted sport in the rural economy. "A wrestler's life," says Andhalkar, "is a kind of invisible *tapasya*. A small injury to a cricketer will play a thousand times in the media. A wrestler dies, no one cares."

[Science And Tech Section Hindu]

Geno-mom, mito-mom, geno-dad: a 3-parent baby?

How is a baby born? Biology tells us that the father's sperm (containing his genetic material) enters the mother's egg cell (containing her genetic material) and upon fertilization an embryo is formed and in time the baby is born. But note, the mother's egg cell has one minor, but important component called the mitochondrion (mitochondria in plural; from the Greek *mito* meaning threadlike and *chondrio* meaning granular). These are bacteria-like cells that have colonized fungal, plant and animal cells since a billion years ago, and act not as parasites but symbionts. They help in taking our metabolic path to completion by oxidizing the food molecules we eat and generate energy. Indeed, without mitochondrial help, the efficiency of converting food into energy would be far less. They add the extra steps, using oxygen for "burning" the molecules and increasing energy production almost a dozen-fold. In addition, they also interact with the 'host' cell machinery, helping in signalling and coordinating several molecular events there. Mitochondria are thus often referred to as cellular powerhouses. The mitochondrion comes with its own genetic material, which it does not share with the DNA contained in nucleus of the host cell that houses it. Autonomy is

maintained in this collaborative living together. An important point to note here is that the developing baby inherits its mitochondria from the mother – from her egg cell which contains mitochondria. The father simply injects his genes through the sperm. (Sperm cells do have mitochondria in their tails, powering the speedy movement of the sperm. But when the sperm enters the egg, this tail with its mitochondria is discarded). Mitochondria are thus an exclusive maternal gift to the baby.

What if her mitochondria had defects? She would then pass them on to the child. Indeed, it is estimated that one in 6500 babies born in UK (and 1 in 4000 in the US, no data in India yet) have mitochondrial disorders such as liver and heart disease, respiratory problems and so forth. How does one solve this problem? Should we repair them or replace them? With the technology currently available, it would be easier to replace than repair.

Why not remove the defective mitochondria from the mother's egg, replace them with healthy ones from a donor lady who is willing to offer her egg cells or embryo? This way we have the genetic or nuclear mother (who passes on her genomic DNA to the baby) and the 'mitochondria mother' (who has donated healthy cellular powerhouses). Now when the sperm of the father-to-be enters and fertilizes the modified egg, the baby has three 'parents': the *geno-mom*, the *mito-mom* and the *geno-dad*.

How

can this be done? In much the same way as the sheep Dolly was produced

by Dr Ian Wilmut in 1996, or the first test-tube baby Louise Brown was

born using *in vitro* fertilization (IVF) method of Dr Edwards in 1968.

Take

the nucleus of a lady carrying defective mitochondria and transfer it

to the egg cell of another lady who has healthy mitochondria, but before

doing so remove the nuclear material from the egg-donor lady.

This way

the genetic material (genomic DNA) of the baby-to-be will be from the

first lady while the egg donor simply offers her mitochondrial genes –

and not her nuclear genetic material. This hybrid egg is now fertilized *in vitro* using the sperm (and thus the genomic material) from the father-to-be through the now conventional IVF method.

Such

three-parent babies are now a reality. UK has given the go ahead a few

months ago for clinical trials and is also drafting regulations covering

the safety, efficacy and the ethical and societal aspects involved in

such a method.

The Food and Drugs Administration

(FDA) of the US has just convened a meeting to consider the biological,

ethical and legal issues involved in this technology.

What

are the scientific issues? Among several, let us focus on one.

We are

still not sure whether the imported 'new' mitochondria work seamlessly

with the host cell machinery in the same manner as the original (albeit

defective) ones did. This issue of compatibility needs to be understood.

Work by Dr. Mitalipov of the Oregon Health & Science University at Beaverton, OR, USA on rhesus monkeys suggests no difficulty on this score.

These three-parent-monkeys are now four years old and healthy. Clinical trials on a few chosen humans will help us understand if this works as safely with us as well.

What are the ethical and legal issues? The Nuffield Council on Bioethics, UK concludes that if this novel technique is proven to be safe and effective, it would be ethical for families to use the method in order to help the child. It also concludes that “mitochondrial donation does not indicate, either biologically or legally, any notion of the child having either a third parent or a second mother”.

In other words, the phrase “Three Parent Baby” might be a misleading one. I wonder what Indian society has to say on this. We have welcomed IVF but banned human cloning (a decision which is both socially and ethically sound and sagacious).

Mars mission: charting a course

Two spacecraft will set out shortly from opposite sides of the globe to study Mars and its atmosphere. India's Mars Orbiter Mission is scheduled to leave next Tuesday (Nov. 5) aboard a

Polar

Satellite Launch Vehicle (PSLV) from Sriharikota. America's MAVEN – an acronym for 'Mars Atmosphere and Volatile Evolution' mission – will follow about a fortnight later.

They will, however, follow different paths to their destination. MAVEN will be making the first leg of its journey on an Atlas V, a rocket considerably more powerful than the PSLV. It will be able to put the spacecraft on a direct course for the Red Planet, a luxury the Indian probe will not enjoy.

The PSLV will leave the spacecraft in an elliptical orbit 250 km at its closest to Earth and 23,500 km at its farthest. To get to Mars, the orbiter must repeatedly fire its own liquid propellant engine. In doing so, it will become the first Indian spacecraft to cross Earth's escape velocity of 11.2 km per second, the threshold beyond which Earth's gravity can no longer pull it back.

As

the amount of propellant remaining at the end of the journey will be an important factor in determining the spacecraft's life, scientists and engineers of the Indian Space Research Organisation (ISRO) have done their best to hold down its consumption during these manoeuvres.

The

onboard engine will be fired five times, each time lengthening the spacecraft's elliptical course around Earth. With multiple burns, the

engine's performance and the velocity imparted to the spacecraft on each occasion can be taken into account in planning the next firing.

Thus

the necessary velocity can be added more accurately, reducing need for

corrections later. This strategy was successfully used when India sent

the Chandrayaan-1 probe to the Moon in 2008.

The

sixth firing of the engine, scheduled for November 30, will push the

probe beyond escape velocity and put it on a carefully chosen propellant-saving trajectory for Mars. The probe will take nearly 300

days to traverse some 400 million km.

As the

spacecraft gets close to Mars, its engine must again fire, this time to

reduce velocity and put it into orbit around that planet.

Charting

the spacecraft's course accurately requires elaborate modelling,

according to the ISRO chairman, K. Radhakrishnan. The effect of Earth's

gravity as well as that of the Sun, Moon, Mars, the two Martian moons

and the other planets are among the many factors that needed to be

incorporated in the calculations.

"When the probe

leaves Earth's orbit on November 30, the position of its arrival near

Mars on September 21, 2014 has to be estimated with a precision of 50

km," Dr. Radhakrishnan told this correspondent.

The

results from ISRO's models had been benchmarked against computations

carried out by Jet Propulsion Laboratory in the U.S., which

has overseen many interplanetary missions. Once the spacecraft successfully enters Martian orbit, its scientific instruments can be switched on. Given the high failure rate of missions to Mars, ISRO will be keeping its collective fingers crossed.

Paediatric TB: should Xpert molecular test replace smear microscopy?

Xpert MTB/RIF rapid molecular diagnostic test is certainly superior to smear microscopy

Unlike adults, children under five years of age are particularly vulnerable to getting infected with TB and may develop the disease very soon after infection. This is all the more true in the case of those from households where an adult has been recently diagnosed with sputum smear positive active pulmonary TB. India's Revised National TB Control Programme (RNTCP) estimates that children account for about 12 per cent of the total TB caseload in the country. As WHO had pointed out, the estimated caseload in India, like in other countries, is a gross underestimation. The main reason is that correct diagnosis of pulmonary TB infection and

disease in children, especially in those under five years, is a big challenge. For instance, unlike adults, young children are unable to produce sputum – the most vital and basic sample to confirm infection/disease.

As a rule, only very few TB bacilli are present in the sputum sample of young children. This is particularly true in the case of children who are less ill. Other diagnostic methods – tuberculin skin test and chest X-ray – have their own limitations and challenges. And clinical symptoms can only serve as a useful indicator but cannot be used in isolation as children exhibit non-specific symptoms.

First diagnostic tool

Smear microscopy is the first diagnostic tool used to microbiologically confirm TB infection/disease. Unfortunately, smear microscopy performs poorly in children, especially in those under five years. The sensitivity of microscopy – depending on the child's age, disease severity and mycobacterial burden – is about 15-20 per cent. Hence, even many active TB cases show up as sputum smear negative (meaning that the child is free of disease).

Culture is the gold standard in diagnosing TB. “[But] culture is not infallible – it has sensitivity limitations and takes time [several weeks] to yield a clinically useful result,” a November 5, 2012 paper published online in *The Lancet* points out. “Where optimum culture facilities are available, confirmation is delayed and the combination of sputum smear and culture tests still misses many cases of

childhood tuberculosis.”

“The sensitivity of culture varies between 20 per cent and 60 per cent,

depending on what you look at,” Dr. Anne Detjen, Technical Consultant,

The Union North America Office, childhood TB/child lung health, said in

an email to this Correspondent.

For these reasons, researchers are looking for an alternative test that

is more sensitive than smear microscopy and takes less time than culture

to yield useful results. And the one that is currently available is

Xpert MTB/RIF – a rapid molecular test. In 2010, WHO endorsed Xpert for

rapid diagnosis of drug-sensitive and multi-drug resistant TB. Several

studies have been done to test its usefulness in diagnosing TB in

children and the results appear encouraging.

A WHO policy update released a few days ago on the use of Xpert in

adults and children with pulmonary and extrapulmonary TB clearly states

that the “overall pooled sensitivity of Xpert MTB/RIF against culture in

children presumed to have TB was 66 per cent in 10 studies where

expectorated sputum (ES) or induced sputum (IS) was used and 66 per cent

in seven studies where gastric lavage aspirates (GLA) were used.

Pooled specificity of Xpert MTB/RIF against culture as the reference standard was over 98 per cent.”

In the case of culture-negative specimens, the pooled sensitivity

against clinical TB as the reference was very low at four per cent for

ES or IS and 15 per cent for GLA.

“It is likely that the apparent poor performance of Xpert was the result of a clinical TB reference standard that lacked specificity,” the policy update notes.

Xpert’s sensitivity

Xpert’s sensitivity in ES/IS among children with smear-negative results ranged from 25 per cent to 86 per cent. But in the case of smear-positive results, the pooled sensitivity of Xpert in either ES or IS was 96 per cent. “The pooled sensitivity estimate in smear-positive children was 96 per cent and 55 per cent in smear-negative children. The findings were similar for Xpert in GLA, with an overall sensitivity of 95 per cent among smear-positive and 62 per cent among smear-negative children,” the update states.

“Xpert MTB/RIF may be used rather than conventional microscopy and culture as the initial diagnostic test in all children presumed to have TB (conditional recommendation acknowledging resource implications, very low-quality evidence),” states the update.

Systematic review

“We have indeed performed a systematic review and meta-analysis of available data on Xpert MTB/RIF in children that contributed to the revised WHO policy guidance,” Dr. Detjen said.

“The Xpert MTB/RIF Policy Guidance Update was reviewed by the WHO Guidelines Review Committee (GRC),” Dr. Christopher Gilpin, Scientist, Global TB programme, WHO, Geneva, said in an email to this Correspondent.

“The systematic reviews included studies with children below five years

and stratified pooled sensitivity and specificity estimates for Xpert MTB/RIF (in expectorated and induced sputum) were determined for children aged 0-4 and 5-15 years. Xpert MTB/RIF in gastric lavage aspirates estimated accuracy for 0-4 year age group only," Dr. Gilpin stated.

"Xpert performs clearly superiorly to smear microscopy but is not good in children that are culture negative," Dr. Detjen noted. She also pointed out other positive outcomes that would come once Xpert is made widely available. "It will increase the number of confirmed TB cases and can detect drug resistance. Health-care workers may actually start taking sputum specimens from children since the new tool is certainly more promising than microscopy. Currently, specimens are often not even taken in places where the only test that can be done is smear microscopy," she pointed out.

Fewer TB bacilli needed

The reason why Xpert performs much better than microscopy is because fewer TB bacilli are required to be present in the sputum sample. If Xpert's lower limit of detection is 131 colony forming units (CFU)/ml, and culture's is 10-100 CFU/ml, it is much higher in the case of smear microscopy.

But Xpert is very unlikely to become available in India for contact screening of children. There are currently 32 Xpert diagnostic machines and the government is in the process of procuring 300 more. But these

are only for testing drug-resistant TB.

Colossal waste for India

By the turn of the century India could catch up with some of the world's most affluent countries in at least one indicator of

urban growth: garbage production.

In the next 12

years alone, South Asia – and “mainly India” – will be the fastest

growing region for waste generation, says a paper published today (Oct

31) in *Nature*. Garbage generation in South Asia will increase eight-fold by year 2100 to reach two million tonnes a day, bringing the

region at par with the conglomerate of the world's 34 most developed

countries including U.K., U.S., Australia and Japan, which make up

Organisation for Economic Co-operation and Development (OECD) countries.

By

2100 “India's total waste generation will be 70 per cent of all the

high income and OECD countries put together,” Perinaz Bhada-Tata,

co-author and solid-waste consultant in Dubai, United Arab Emirates,

told this Correspondent.

While India's per capita

waste generation rate will still be lower than most affluent countries,

“the sheer size of its population and expected increase in urbanization

and a rapidly-expanding middle class,” will account for the colossal

amount of waste it generates in total, she added.

With

India becoming the most populous country in the world before

2030 and

its projected economic growth rate, "it is likely only a matter of time

before India is the world's largest municipal solid waste generator,"

Daniel Hoornweg, lead author and associate professor of energy systems

at the University of Ontario Institute of Technology in Oshawa, Canada,

told this Correspondent.

"A country's total solid

waste is a function mainly of the number of middle class (and above) who

almost all live in cities... India will probably surpass the U.S. and

then China as the world's single largest solid waste generator," he

added.

The research paper describes the staggering trajectory of global urban growth and waste generation over the last century.

In

1900, the world's 220 million urban residents produced less than

300,000 tonnes of rubbish per day, comprising relatively innocuous

"broken household items, ash, food waste and packaging" per day.

By

2000, 2.9 billion people were living in cities; and by 2025 garbage

production will reach 6 million tonnes a day, a quantity that will be

"enough to fill a line of rubbish trucks 5,000 kilometres long every day."

The world's cities together will be producing

garbage in excess of 11 million tonnes per day by 2100, which is over

three times today's figure.

However, "as city dwellers become richer, the amount of waste

they produce reaches a limit," says the paper. While the authors do not believe that this 'peak' will happen this century, they say that through a move to stabilise population growth, manage cities better, and with greater equity and use of technology, the peak could come forward to 2075. "This would save around 2.6 million tonnes per day."

Urbanisation making us more susceptible to natural disasters, says global report

[dte]

Rapid growth in the number of people living in urban areas is increasing the world's susceptibility to natural disasters, warns a recent global report by the Institution of Mechanical Engineers (IMechE), a London body representing engineers from various fields. The report, titled [Natural Disasters: Saving Lives Today, Building Resilience Tomorrow](#), calls for a much greater focus on preparing people for possible extreme

natural events and building disaster resilience among locals. It says that about 78,000 people are killed annually in natural disasters and another 200 million (or about 3 per cent of the human population) are directly affected by them. Economic loss from these tragedies stretches across the globe and ranges around US \$100 billion a year, the report says, while citing the instance of tsunami that hit Japan in 2011.

According to the report, the trend of global urbanisation shows that 75 per cent of the world's population would be living in towns and cities by 2050, with 95 per cent of this expansion being anticipated in developing countries. The movement of more and more people into less resilient areas like coastal regions, flood plains and earthquake-prone zones has been cited as one of the factors responsible for more natural disasters. Degradation of natural environment is another reason for increasing calamities. The report cites unplanned expansion and development in disaster-prone areas as another reason for increased disasters and mentions recent flood fury in Uttarakhand in India as an example.

Building back better

The report stresses on the need to prioritise the next phase of rebuilding affected areas after any tragedy in cooperation

with communities which are more resilient. For this, it suggests putting in place long-term infrastructure redesign and re-engineering, and incorporating knowledge from across the globe on the ways to build and scale up preparedness and resilience against future events, often termed as “building back better”.

“When extreme natural events like earthquakes, tsunamis and cyclones occur, it is crucial that engineers are involved in early response activities, not only to assess damage and ensure safety of the remaining buildings and structures, but also to ensure that decisions are made for a longer-term,” said Tim Fox, head of energy and environment at IMechE, during the release of the report.

“As was seen earlier this week in India in case of cyclone Phailin, given adequate levels of preparedness and resilience many disasters could be avoided and lives and communities saved,” he added. Fox also explained that engineering can play a big role in strengthening preparedness and reducing the impact of unavoidable disasters. “Engineers are critical to planning and developing specific and local resilience as they are the ones who can assess the gravity of issues like the availability of potable water, energy, sanitation, transport links for food supplies and interconnectedness of essentials

like water and electricity,” said the IMechE head.

The report recommends that governments around the world should be

more focused on building local capacity through planning and knowledge

transfer and embedding long-term engineering perspectives along with

short-term responses.

The report also reveals how the involvement of the private sector can

be instrumental in overcoming the challenge of transferring technical

ability to developing nations and their resilience programs.

Key findings of the report:

- On an average, about 78,000 people are killed annually in natural disasters, with a further 200 million (or about 3 per cent of the human population) directly affected by it and economic losses running into about US \$100 billion.
- Man-made changes have removed the natural barriers which had been protecting the Earth against extreme natural events
- Rapid growth of economic activity, human population and urbanisation in Asia-Pacific countries has rendered the region more vulnerable to the effects of extreme natural events
- Between 1980-2009, about 38 per cent of disaster-related economic losses, from across the globe, occurred in Asia, which shows the continent is 25 times more susceptible to natural disasters than Europe

Higher sex ratio among tribal, SC groups: census

[hindu]

Despite having lower literacy rates than “others”, scheduled caste households have higher sex ratios, and tribals the highest of all, newly released Census data shows.

While census data is not yet available by religious group, the primary data of scheduled castes and scheduled tribes was made available by the office of the Registrar General of India and Census Commissioner on Monday.

The data shows that although the numbers are improving, scheduled castes, who comprise 16.6% of the population, and scheduled tribes, who make up 8.6% of the population, have lower literacy rates than the Indian average. The literacy rate for female STs is still under 50% and just 57% for SC women, while the numbers are slightly higher for men.

Yet despite the common belief that education will improve attitudes to female children, the data shows that India’s least educated social groups are those with better sex ratios. The child sex ratio (girls for every 1000 boys aged 1-6) is 957 for STs and 933 for SCs as compared to 910 for “others”. In urban areas, the child sex ratio of the non-scheduled caste, non-tribal population is just over 900, meaning there are 100 less girls for every 1000 boys.

Better sex ratios among tribals could reflect a combination of positive and negative factors; cultural gender parity as well as lack of access to pre-natal diagnostic technology. Dr. Abhay Bang, the award-

winning doctor and social activist from Gadchiroli in Maharashtra who is a member of the central government's new High-Level Committee on Status of Tribal Communities, says that both factors could co-exist. "It is true that there is no social bias against women in tribal communities such as there exists among the middle castes, especially landed ones. Women can ask for a divorce, and in many communities, money is paid to the girl's family at the time of marriage," Dr. Bang told *The Hindu*. Simultaneously, most tribal communities either do not know of pre-natal sex determination, or do not have access to it, Dr. Bang said. "But among more educated tribals, those who get government jobs, sex selection has begun," he said. Similarly, the female work participation rate – the proportion of women who are in the workforce – which is considered an indicator of female empowerment, is highest among STs, followed by SCs and then "others". In fact, the proportion of female STs in the workforce is nearly double that of women in the "other" category; 44% as against 23%.

Social group	Child sex ratio	Sex ratio	Effective female literacy rate (in %)	Females in workforce (in %)
ST	957	990	49.35%	43.49%
SC	933	945	56.46%	28.30%
Others	910	937	68.19%	22.76%
India	919	943	64.64%	25.51%

Within caste groups, location matters. The child sex ratio among SCs is far lower in states like Haryana, Punjab and Delhi which have low sex ratios for all social groups. Within these states, however SCs do better than other social groups. Similarly, the literacy rate of SCs in Kerala is higher than that of "others" in Bihar. The new numbers also show that tribals are undergoing a massive occupational change. While there has been a fall in the proportion of people working as cultivators and a rise in agricultural labour across the country, this shift is most marked in the case of STs. Nearly 10 lakh fewer tribals reported being cultivators in 2011 as compared to ten years ago, while there were 73 lakh more tribal agricultural labourers.

India slips to 106th spot in World Prosperity Index [ie]

India has slipped by five places to 106th spot, way below neighbouring Bangladesh, Nepal, Sri Lanka and China in the World Prosperity Index, largely due to poor 'safety and security' environment.

In the 'Prosperity Index' ranking of 142 countries compiled by London-based Legatum Institute, India dropped from 101st position last year, while Norway continues to remain at the top.

Besides, India has fallen down the prosperity index rankings consistently over the last five years, the report said.

The 2013 Legatum Prosperity Index evaluates nations in eight categories, including education, health, economy, safety and security.

India's position has dropped below neighbouring China (51), Sri Lanka (60), Nepal (102) and Bangladesh (103).

At the top of the index, Norway defended its numero uno position for the fifth year. Switzerland is at second place, followed by Canada at third, Sweden at fourth and New Zealand at fifth.

Besides, in the 'Ease of Doing Business' report by World Bank and International Finance Corporation (IFC) released earlier this week, India was ranked at 134th place while neighbours like China, Pakistan, Nepal and Bangladesh were placed at better positions.

According to the report, India has slipped in the safety and security category by 21 places to 120 "due to an increase in property being stolen, assault rates, group grievances, and drop in the perception of feeling safe walking home alone at night."

Besides, the country has dropped by 45 places to 100 on personal freedom segment "due to a drop in the tolerance of immigrants and a drop in civic choice variables."

Moreover, the country ranked low on health ground (109 in the index), entrepreneurship and opportunity (104) and education (97).

Meanwhile, on the lower end of the rankings Chad stood at 142, Central African Republic (141), Congo (140), Afghanistan (139), Pakistan (132) and Iraq (130).

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THE BUDGETARY PROCESS

paper 3 Third Topic

THE BUDGET

What is Budget?

The Annual Financial Statement or the Statement of the Estimated Receipts and Expenditure of the Government of India in respect of each financial year is popularly known as the Budget.

Presentation of Budget

2. The Budget is presented to Lok Sabha in two parts, namely, the Railway Budget pertaining to Railway Finance and the General Budget which gives an overall picture of the financial position of the Government of India, excluding the Railways.

3. The Budget is presented to Lok Sabha on such day* as the President may direct. Immediately after the presentation of the Budget, the following three statements under the Fiscal Responsibility and Budget Management Act, 2003 are also laid on the Table of

* By convention the Railway Budget is presented sometime in the third week of February at 1200 hours after the Question Hour. The General Budget was presented by convention, till 1998, on the last working day of February at 5 P.M. This convention was however, changed in 1999 when the General Budget was presented at 11 A.M. Since then the General Budget is presented at 11 A.M. on the last working day of February (except in 2000 when it was presented at 2 P.M.).

Lok Sabha:- (i) The Medium Term Fiscal Policy Statement; (ii) The Fiscal Policy Strategy Statement; and (iii) The Macro Economic Framework Statement. Simultaneously, a copy of the respective Budgets is laid on the Table of Rajya Sabha. In an

election year, the Budgets may be presented twice—first to secure a Vote on Account for a few months and later in full.

Distribution of Budget Papers

4. In the case of the Railway Budget, the sets are distributed to members from the Publications Counter after the Railway Minister has concluded his speech. The sets of General Budget are distributed to members from several booths in the Inner and Outer Lobbies arranged according to the Division Numbers of members. In case Division Numbers have not been allotted, these booths are arranged State-wise. The budget papers are made available to members after the Finance Minister's speech is over, the Finance Bill has been introduced and the House has adjourned for the day.

Discussion on the Budget

5. No discussion on Budget takes place on the day it is presented to the House. Budgets are discussed in two stages—the General Discussion followed by detailed discussion and voting on the demands for grants.

Allotment of Time for Discussion

6. The whole process of discussion and voting on the demands for grants and the passage of the Appropriation and Finance Bills is to be completed within a specified time. As a result, often the demands for grants relating to all the Ministries/Departments cannot be discussed and demands of some Ministries get guillotined i.e. voted without discussion. The Minister of Parliamentary Affairs, after the presentation of the Budget, holds a meeting of leaders of Parties/ Groups in Lok Sabha for the selection of Ministries/ Departments whose demands for grants might be discussed in the House. On the basis of decisions arrived at this meeting, the Government forwards the proposals for the consideration of the Business Advisory Committee. The Business Advisory Committee after considering the proposals allots time and also recommends the

order in which the demands might be discussed. It is generally left to the Government to make any change in the order of discussion.

7. After the allotment of time by the Business Advisory Committee, a time table showing the dates on and order in which the demands for grants of various Ministries would be taken up in the House is published in Bulletin-Part II for the information of members.

General Discussion on the Budget

8. During the General Discussion, the House is at liberty to discuss the Budget as a whole or any question of principles involved therein but no motion can be moved. A general survey of administration is in order. The scope of discussion is confined to an examination of the general scheme and structure of the Budget, whether the items of expenditure ought to be increased or decreased, the policy of taxation as expressed in the Budget and in the speech of the Finance Minister. The Finance Minister or the Railway Minister, as the case may be, has the general right of reply at the end of the discussion.

Consideration of the Demands for Grants by Departmentally Related Standing Committees of Parliament

9. With the creation of Departmentally Related Standing Committees of Parliament in 1993, the Demands for Grants of all the Ministries/Departments are required to be considered by these Committees. After the General Discussion on the Budget is over, the House is adjourned for a fixed period. During this period, the Demands for Grants of the Ministries/Departments are considered by the Committees. These Committees are required to make their reports to the House within specified period without asking for more time and make separate report on the Demands for Grants of each Ministry.

Discussion on Demands for Grants

10. The demands for grants are presented to Lok Sabha along with the Annual Financial Statement. These are not generally moved in the House by the Minister concerned. The demands are

assumed to have been moved and are proposed from the Chair to save the time of the House. After the reports of the Standing Committees are presented to the House, the House proceeds to the discussion and voting on Demands for Grants, Ministry-wise. The scope of discussion at this stage is confined to a matter which is under the administrative control of the Ministry and to each head of the demand as is put to the vote of the House. It is open to members to disapprove a policy pursued by a particular Ministry or to suggest measure for economy in the administration of that Ministry or to focus attention of the Ministry to specific local grievances. At this stage, cut motions can be moved to reduce any demand for grant but no amendments to a motion seeking to reduce any demand is permissible.

Cut Motions

11. The motions to reduce the amounts of demands for grants are called 'Cut Motions'. The object of a cut motion is to draw the attention of the House to the matter specified therein.

12. Cut Motions can be classified into three categories:-

(i) Disapproval of Policy Cut;

(ii) Economy Cut; and

(iii) Token Cut.

Disapproval of Policy Cut: A cut motion which says "That the amount of the demand be reduced to Re. 1" implies that the mover disapproves of the policy underlying the demand. The member giving notice of such a Cut Motion has to indicate in precise terms the particulars of the policy which he proposes to discuss. Discussion is confined to the specific point or points mentioned in the notice and it is open to the member to advocate an alternative policy.

Economy Cut: Where the object of the motion is to effect economy in the expenditure, the form of the motion is "That

the amount of the demand be reduced by Rs...(a specified amount)". The amount suggested for reduction may be either a lump-sum reduction in the demand or omission or reduction of an item in the demand.

Token Cut: Where the object of the motion is to ventilate a specific grievance within the sphere of responsibility of the Government of India, its form is: "That the amount of the demand be reduced by Rs. 100" . Discussion on such a cut motion is confined to the particular grievance specified in the motion which is within the sphere of responsibility of the Government of India.

13. For the facility of members, printed forms for giving notices of cut motions are kept in the Parliamentary Notice Office.

Notice period for tabling Cut Motions

14. The notices of cut motions can be tabled after the presentation of Railway/General Budget.

15. The notices of cut motions tabled up to 15.15 hours on a day are printed and circulated before the day the relevant demands for grants to which they relate are to be taken up in the House. The notices tabled after 15.15 hours are deemed to have been tabled on the next working day. These notices are printed and circulated on the next working day if the demands for grants to which they relate have not already been disposed of in the House.

16. As cut motions are circulated to members both in English and Hindi simultaneously, the Rules Committee (Fourth Lok Sabha) at its sitting held on 9 March, 1970 decided that members might be requested to table such notices at least two days before the day they are to be taken up in the House.

17. Accordingly, members should table the notice of cut motions at least two days before the day the demands for

grants to which they relate, are to be taken up in the House, but in any case not later than 15.15 hours on the previous day.

Admissibility of Cut Motions—Conditions of

18. A cut motion to be admissible should satisfy the following conditions:—

- (1) It should relate to one demand only.
- (2) It should be clearly expressed and should not contain arguments, inferences, ironical expressions, imputations, epithets and defamatory statements.
- (3) It should be confined to one specific matter which should be stated in precise terms.
- (4) It should not reflect on the character or conduct of any person whose conduct can only be challenged on a substantive motion.
- (5) It should not make suggestions for the amendment or repeal of existing laws.
- (6) It should not relate to a State subject or to matters which are not primarily the concern of the Government of India.
- (7) It should not relate to expenditure 'Charged' on the Consolidated Fund of India.
- (8) It should not relate to a matter which is under adjudication by a court of law having jurisdiction in any part of India.
- (9) It should not raise a question of privilege.
- (10) It should not revive discussion on a matter which has been discussed in the same session and on which decision has been taken.

(11) It should not anticipate a matter which has been previously appointed for consideration in the same session.

(12) It should not ordinarily seek to raise discussion on a matter pending before any statutory tribunal or statutory authority performing any judicial or quasi-judicial functions or any commission or court of enquiry appointed to enquire into, or investigate any matter. However, the Speaker may in his discretion allow such matter being raised in the House as is concerned with the procedure or stage of enquiry, if the Speaker is satisfied that it is not likely to prejudice the consideration of such matter by the statutory tribunal, statutory authority, commission or court of enquiry.

(13) It should not relate to a trifling matter.

19. The Speaker decides whether a cut motion is or is not admissible and may disallow any cut motion when in his opinion it is an abuse of the right of moving cut motions or is calculated to obstruct or prejudicially affect the procedure of the House or is in contravention of the Rules of Procedure of the House.

20. It is a well-established Parliamentary convention that cut motion seeking to discuss the action of the Speaker or relating to Speaker's Department or matters under the control of Speaker are not allowed. Likewise, cut motions relating to the office of the Vice-President (who is also ex-officio Chairman of Rajya Sabha) are not admissible. Cut motion relating to matters under consideration of a Parliamentary Committee are not admissible. Cut motions are not admissible if they ventilate personal grievances, or if they cast aspersions on individual Government officials. Cut motions seeking to discuss a matter affecting relations with a friendly foreign country or details of internal administration of an autonomous body are out of order as also those which seek omission of a whole grant.

Token cuts seeking to discuss inadequacy of provision in respect of a particular demand are, however, in order.

Normally members of ruling party do not table cut motions.

Circulation of Lists of Cut Motions

21. Lists of cut motions to the various demands for grants as admitted by the Speaker are circulated to members generally two days in advance of the date on which the demands for grants in respect of the Ministry are to be taken up in the House for discussion.

Moving of Cut Motions

22. At the commencement of the discussion on the demands for grants in respect of a particular Ministry, members are asked by the Speaker to hand over at the Table, within fifteen minutes, slips indicating the serial numbers of their cut motions that they would like to move. The cut motions thus indicated are only treated as moved. Cut motions cannot be moved at a later stage.

23. Cut motions cannot be moved by proxy. A member should be present in the House to move his cut motions when the relevant demands for grants are taken up.

Guillotine

24. On the last of the allotted days for the discussion and voting on demands for grants, at the appointed time the Speaker puts every question necessary to dispose of all the outstanding matters in connection with the demands for grants. This is known as guillotine. The guillotine concludes the discussion on demands for grants.

Annual Reports, Outcome Budgets and Detailed Demands for Grants of the Ministries

25. In connection with discussion on demands for grants,

copies of the Annual Reports and Outcome Budget of the various Ministries and Departments are made available to members through the Publications Counter. Detailed demands for grants in respect of various Ministries/Departments are laid on the Table of Lok Sabha some time before the demands for grants are considered by the Departmentally Related Standing Committees.

Vote on Account

26. As the whole process of Budget beginning with its presentation and ending with discussion and voting of demands for grants and passing of Appropriation Bill and Finance Bill generally goes beyond the current financial year, a provision has been made in the Constitution empowering the Lok Sabha to make any grant in advance through a vote on account to enable the Government to carry on until the voting of demands for grants and the passing of the Appropriation Bill and Finance Bill.

27. Normally, the vote on account is taken for two months for a sum equivalent to one sixth of the estimated expenditure for the entire year under various demands for grants. During an election year, the vote on account may be taken for a longer period say, 3 to 4 months if it is anticipated that the main demands and the Appropriation Bill will take longer than two months to be passed by the House.

28. As a convention vote on account is treated as a formal matter and passed by Lok Sabha without discussion.

29. Vote on account is passed by Lok Sabha after the general discussion on the Budget (General and Railway) is over and before the discussion on demands for grants is taken up.

Supplementary and Excess Demands for Grants

30. If the amount authorised to be expended for a particular service for the current financial year is found to be insufficient for the purpose of that year or when a need has

arisen during the current financial year for supplementary or additional expenditure upon some 'new service' not contemplated in the Budget for that year the President causes to be laid before both the Houses of Parliament another statement showing the estimated amount of that expenditure.

31. If any money has been spent on any service during a financial year in excess of the amount granted or the service for that year, the President causes to be presented to Lok Sabha a demand for such excess. All cases involving such excesses are brought to the notice of Parliament by the Comptroller and Auditor General through his report on the Appropriation Accounts. The excesses are then examined by the Public Accounts Committee which makes recommendations regarding their regularisation in its report to the House.

32. The Supplementary Demands for Grants are presented to and passed by the House before the end of the financial year while the demands for excess grants are made after the expenditure has actually been incurred and after the financial year to which it relates, has expired.

33. Copies of the Books of Demands for Supplementary or Excess Grants, received from the Ministry of Finance, are made available to members from the Publications Counter after the presentation of such demands.

Procedure for Discussion

34. Supplementary and Excess Grants are regulated by the same procedure as is applicable in the case of demands for grants of the main Budget subject to such adaptations, whether by way of modification, addition or omission, as the Speaker deems necessary or expedient.

Scope of discussion on Supplementary/Excess Grants

35. The discussion on the Supplementary Demands for Grants is confined to the items constituting the same and no discussion

can be raised on the original grants nor on the policy underlying them. In respect of schemes already sanctioned in the main Budget, no discussion on any question of principle or policy is allowed. As regards demands for which no sanction has been obtained, the question of policy has to be confined to the items of expenditure on which the vote of the House is sought. General grievances cannot be ventilated during discussion on a Supplementary Grant. Member can only point out whether the Supplementary Demand is necessary or not.

36. During discussion on Excess Demands for Grants members can point out how money has been spent unnecessarily or that it ought not to have been spent; beyond this there is no scope for general discussion or for ventilation of grievances.

Cut Motions to Supplementary/Excess Demands for Grants

37. The cut motions to Supplementary or Excess Demands for Grants must relate to the subject matter of the Supplementary or Excess Demands. Cut motions which are extraneous to the subject matter of such demands are out of order.

Appropriation Bill

38. After the demands for grants have been passed by the House, a Bill to provide for the appropriation out of the Consolidated Fund of India of all moneys required to meet the grants and the expenditure charged on the Consolidated Fund of India is introduced, considered and passed. The introduction of such Bill cannot be opposed. The scope of discussion is limited to matters of public importance or administrative policy implied in the grants covered by the Bill and which have not already been raised during the discussion on demands for grants. The Speaker may require members desiring to take part in the discussion to give advance intimation of the specific points they intend to raise and may withhold permission for raising such of the points as in his opinion appear to be repetition of the matters discussed on a demand

for grant. Such advance intimation must be given before 10.00 hours on the day the Appropriation Bill is to be taken into consideration. No action is taken on intimations received after 10.00 hours.

39. No amendment can be proposed to an Appropriation Bill which will have the effect of varying the amount or altering the destination of any grant so made or of varying the amount of any expenditure charged on the Consolidated Fund of India, and the decision of the Speaker as to whether such an amendment is admissible is final. An amendment to an Appropriation Bill for omission of a demand voted by the House is out of order.

40. In other respects, the procedure in respect of an Appropriation Bill is the same as in respect of other Money Bills.

Finance Bill

41. "Finance Bill" means a Bill ordinarily introduced every year to give effect to the financial proposals of the Government of India for the next following financial year and includes a Bill to give effect to supplementary financial proposals for any period.

42. The Finance Bill is introduced immediately after the presentation of the Budget. The introduction of the Bill cannot be opposed. The Appropriation Bills and Finance Bills may be introduced without prior circulation of copies to members.

42A. The Finance Bill usually contains a declaration under the Provisional Collection of Taxes Act, 1931, by which the declared provisions of the Bill relating to imposition or increase in duties of customs or excise come into force immediately on the expiry of the day on which the Bill is introduced. In view of such provisions and the provision of Act of 1931, the Finance Bill has to be passed by Parliament

and assented to by the President before the expiry of the seventy-fifth day after the day on which it was introduced.

43. As the Finance Bill contains taxation proposals, it is considered and passed by the Lok Sabha only after the Demands for Grants have been voted and the total expenditure is known. The scope of discussion on the Finance Bill is vast and members can discuss any action of the Government of India. The whole administration comes under review.

44. The procedure in respect of Finance Bill is the same as in the case of other Money Bills.

Budgets of Union Territories and States under President's Rule

45. Budgets of Union territories and States under President's Rule are also presented to Lok Sabha. The procedure in regard to the Budget of the Union Government is followed in such cases with such variations or modifications, as the Speaker may make.

[The procedure for presentation of the Budget in and its passing by Lok Sabha is as laid down in articles 112–117 of the Constitution of India, Rules 204–221 and 331-E of the Rules of Procedure and Conduct of Business in Lok Sabha and Direction 19-B of Directions by the Speaker.]