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Wed, 31 Aug, 2016

India, US sign pact to use military assets, bases

Aims at providing innovative defence technology

Washington: In a major boost to bilateral strategic ties, India and the US have signed a crucial pact that will enable their militaries to use each other's assets and bases.

The logistics defence agreement is aimed at making joint operations more efficient by facilitating repair and replenishment of supplies. Defence Minister Manohar Parrikar and US Defence Secretary Ashton Carter signed the 'Logistics Exchange Memorandum of Agreement' (LEMOA) and said it will facilitate opportunities for "practical engagement and exchange".

LEMOA facilitates the provision of logistical support, supplies and services between the US and Indian militaries on a reimbursable basis and provides a framework to govern them. This may include food, water, billeting, transportation, petroleum, lubricants, clothing, medical services, spare parts and components, repair and maintenance services, training services, and other logistical items and services.

"They agreed on the importance (that) this framework will provide to facilitate innovative and advanced opportunities in defence technology and trade cooperation. To this end, the US has agreed to elevate defence trade and technology sharing with India to a level commensurate with its closest allies and partners," said a joint statement after the pact was signed. According to the statement, the defence ties between the two countries are based on their "shared values and interests", and their "abiding commitment to global peace and security".

Parrikar, at a joint news conference with Carter after the two leaders held talks at the Pentagon on Monday, made it clear that "there is no provision for any base or any sort of activities to set up a base in India".

"It (LEMOA) doesn't have anything to do with the setting up of a base. It's basically logistics support to each other's fleet.

"So, it basically will ensure that both navies can be supportive of each other in the joint operations we do, exercises we do," Parrikar told reporters. LEMOA is a very substantial enabler of the two countries to work together, the US defence secretary said. Carter said the agreement would make joint operations between their militaries logistically easier and more efficient.

"It is fully mutual. In other words, we grant one another completely equal access and ease under this agreement. It's not a basing agreement of any kind, but it does make the logistics of joint operations so much easier and so much more efficient," he said.

Parrikar also indicated that India is not in a hurry to sign two other foundational agreements which America has been pushing for the past several years.

Wed, 31 Aug, 2016

Parrikar: Pact doesn't have anything to do with bases

The sight of an American F-22 jet fighter landing at a forward Indian airbase or an Indian aircraft carrier berthing off San Diego, California or Japan's Okinawa may not be such an unusual sight in the months to

come. On Monday, India and the United States signed a logistics pact to allow mutual basing facilities on a case-by-case basis, with the navies of the two countries becoming first movers in testing the logistics of operating together.

Both sides quickly emphasised that the agreement did not envisage permanent basing facilities, even as overwrought reactions began gushing from some quarters in China and Pakistan that see a military alliance in the pact. The deal, US defence secretary Ashton Carter said at a Pentagon briefing, was a "very substantial enabler of two countries to work together". What it does it is make possible and make easier us working together when we choose to," Carter explained, adding that it was a "fully mutual" pact and the two governments have to agree on a case-by-case basis to allow the logistics of operating together.

Defence minister Manohar Parrikar was even more circumspect about the agreement christened LEMOA (Logistics Exchange Memorandum of Agreement), After twice emphasising in his opening remarks that the agreement "doesn't have anything to do with bases" and there is "no provision for any base," he was asked by an American journalist when India could be expected to sign two other foundational agreements that would form the basis of greater military consonance between the two countries. His response could well have been paraphrased as, "Are you kidding?" LEMOA itself has taken 1213 years and you could see the mistrust with questions about bases, Parrikar replied, in an oblique reference to constituencies in India still leery of over-the-heels engagement with Washington. "Let me get the logistics (of LEMOA) into public domain, then we will think about (the other foundational agreement)," he added.

But outside the political posturing, military circles and strategic pundits in the US were clear that LEMOA was a big step in operational logistics, with the pact providing for mutual use of supplies, spare parts, services and refueling across the globe. "For the US, this is one part of the much larger pivot to Asia intended by President Obama to meet a rising China. The US Navy plans to deploy 60% of its surface ships in the Indo-Pacific in the near future. Instead of having to build facilities virtually from the ground up, as in Afghanistan and Iraq, the US has the benefit of simple arrangements for the tremendous Indian facilities," noted Charles Tiefer, a military writer for Forbes.

"For both the US and India, LEMOA responds to the powerful challenge of Xi's artificial islands --with air bases -in the South China Sea. It may also matter against the common enemy of the US and India in jihadists," he said.

'Deal compromises India's sovereignty'

CPM on Tuesday condemned the signing of the Logistics Support Agreement between US and India. In a statement, CPM politburo said, the agreement will allow the American armed forces to access and use Indian military bases. Hopeful that "all patriotic Indians will reject such a subordinate role to US imperialism," CPM said.



Wed, 31 Aug, 2016

The challenge lies in implementation

By Dinakar Peri

The logistics pact signed between India and the U.S. after over a decade of negotiations does not mean much in itself, say experts, adding that the real challenge lies in its implementation.

The Logistics Exchange Memorandum of Agreement (LEMOA) is an administrative arrangement facilitating access to each other's military facilities for exchange of fuel and provisions on mutual agreement.

"LEMOA is just an enabling agreement and the test of it lies in how it plays out in the future," observed Rear Admiral (retd.) V.S. Chaudhari, the additional director of Centre for Joint Warfare Studies.

Another retired Navy officer who did not wish to be named termed it a "procedural thing" and said that too much was being made out of it as "it is a break from the past." "The real issue is its implementation and the status of forces for which India has not signed an agreement with the U.S.," he stated, pointing to the intrusive U.S. clauses that may be politically problematic for India.

Strong message to China - Other experts see it as sending a strong message to Beijing. Some in the Chinese media had expressed concerns over signing of the agreement. According to Dr. W.P.S. Sidhu, Senior Fellow at New York University's Centre on International Cooperation, China's reaction proves that LEMOA is a formidable diplomatic and military tool that India can leverage to build its own capacity vis-à-vis Beijing. "It also underlines the emerging U.S.-India alliance against the China-Pakistan-DPRK axis," he told *The Hindu*.

Another Asia expert, Michael Kugelman, Senior Program Associate at Wilson Centre said that it "telegraphs a clear message of intent" even as some of the definitional issues continue to be worked out. He said that LEMOA could be seen as a case of putting the cart before the horse, because the two countries have still not agreed on what should constitute the essence of security cooperation.



Wed, 31 Aug, 2016

The LEMOA embrace

The signing of the Logistics Exchange Memorandum of Agreement (LEMOA) during Defence Minister Manohar Parrikar's visit to Washington is a significant step forward for India and the U.S. The agreement, which comes after more than a decade of negotiations, puts an automatic approvals process in place for the two militaries to share each other's bases for various operations. These include port visits, joint exercises, joint training, and humanitarian assistance and disaster relief efforts; other uses are to be discussed on a case-by-case basis. The agreement will aid the sort of operations India has undertaken to rescue stranded Indians in conflict zones. Further, as the Indian military continues to expand its role to aid in disaster relief, as it did during the 2004 tsunami, it will benefit from easier access to America's network of military bases around the world. The pact will also enhance the military's capability to be an expeditionary force, at a time when Indian interests are distributed around the world with major investments planned both onshore and offshore in oilfields. The U.S., too, has required the help of India, as it did when emergency planes were refuelled in Delhi during the Nepal earthquake relief operation. As India and the U.S. explore plans for maritime cooperation in the Asia-Pacific as a part of the joint vision statement, LEMOA is going to add value.

LEMOA is not without its drawbacks, however, as is evident from the fact that it took so many years to agree upon. Even after the Centre had cleared the "foundational agreement", as it is known, it took several months and at least four high-level meetings to finalise the text. A major reason for this was that although India embarked on closer defence ties with the U.S. years ago, there was no consensus or support within the establishment for an alliance of any kind, which the LEMOA had come to symbolise. As Mr. Parrikar pointed out during his joint appearance with U.S. Defence Secretary Ashton Carter, the finally negotiated text has nothing to do with setting up U.S. bases in India, and there is no "obligation" on either side to carry out any joint activity. Mr. Parrikar also mentioned a need to explain to the people the import of the agreement by bringing it into the public domain before the government considers discussions on the other foundational agreements the U.S. is keen to draw India into. The caution from Mr. Parrikar shows a nuanced understanding of the benefits and reservations about the Centre's latest move, which is a welcome trend.

Wed, 31 Aug, 2016

India, US sign pact for cyber relations

New Delhi: India and the United States on Tuesday signed a framework for cyber relations on the sidelines of the second bilateral strategic and commercial dialogue in New Delhi.

The new India-US framework is aimed at stepping up bilateral cooperation in identifying, coordinating, sharing and implementing cyber security best practices. It also provides for sharing information on a real time or near real time basis about malicious cyber security threats, attacks and activities, and establishing appropriate mechanisms to improve sharing of information.

"The new framework will boost cooperation between law enforcement agencies of India and the US to combat cyber crime, including through training workshops, enhancing dialogue and processes and procedures and by instituting consultation mechanism," said officials in New Delhi.

The framework is intended to step up cooperation between Computer Emergency Response Team of US and its counterpart in India, CERT-IN.

It is also aimed at improving the capacity of law enforcement agencies through joint training programmes, including equipping them to draft appropriate requests for electronic evidence in accordance with the respective laws and regulations of India and the US, added the officials.

"It is heartening to note that we have been able to conclude a framework for the India-US cyber relationship, the first of its kind both for India and the US, with any other country," External Affairs Minister Sushma Swaraj said in her opening remarks at the strategic and commercial dialogue.

Sushma and Minister of State Nirmala Sitharaman joined US Secretary of State John Kerry and Secretary of Commerce Penny Pritzker to lead the respective delegations in the strategic and commercial dialogue.



PEOPLE'S PARLIAMENT, ALWAYS IN SESSION

Wed, 31 Aug, 2016

Will eventually ink other agreements pushed by US: Manohar Parrikar

He indicated that India is not in a hurry to sign two other foundational agreements which America has been pushing for the past several years

Following the inking of an important logistical pact with the US, Defence Minister Manohar Parrikar has indicated that India is not in a hurry to sign two other foundational agreements which America has been pushing for the past several years.

"I think after 12, 13 years, we have managed to get logistic agreement in place. You could see the logistic agreement was being mixed up with setting of bases. So let me get this logistic agreement in the public domain properly and explain to the people. Then we will eventually go into the other aspects," Parrikar told reporters at a joint news conference with the US Defence Secretary Ashton Carter.

Parrikar was responding to questions about the future of two foundational agreements – Communications and Information Security Memorandum of Agreement (CISMOA); Basic Exchange and Cooperation Agreement (BECA) for Geospatial Intelligence.

These two are part of the four foundational agreements being pushed by the US for more than a decade.

The Statesman

PEOPLE'S PARLIAMENT, ALWAYS IN SESSION

Wed, 31 Aug, 2016

Indo-US pact only on mutual consent, clarifies Def ministry

STATESMAN NEWS SERVICE
New Delhi, 30 August

The Defence Ministry today sought to counter criticism of the Indo-US military Logistics Exchange of Memorandum of Understanding (LEMOA) inked in Washington yesterday.

The ministry tweeted that it will work only on mutual consent, and that it does not provide for setting up of bases or an obligation to carry out joint activities.

"Defence cooperation between India and the United States has never been stronger than it is today," the ministry said in a tweet from its official Twitter handle.

The LEMOA was inked in the presence of Defence Minister Manohar Parrikar and US Secretary of Defence Ashton Carter.

"LEMOA is a facilitating agreement that establishes terms, conditions, procedures for reciprocal provision of logistic support, supplies, service. Reciprocal lo-

'Defence cooperation between India and the United States has never been stronger than it is today'

gistic support would be used exclusively in port visits, joint exercises, joint training, humanitarian assistance and disaster relief," it said.

"Logistics support for any other cooperative efforts shall only be provided on case to case basis through prior mutual consent of parties," it said, adding that this consent would be consistent with the respective laws, regulations and policies. The Defence Ministry tweets said LEMOA "does not create any obligations on either party to carry out any joint activity", "does not provide for the establishment of any bases or basing arrangements", and "significantly enhances operational capacity of our armed forces, including in response to humanitarian crises or disaster relief".

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Wed, 31 Aug, 2016

China says it's glad, hopes deal will bring stability, peace in region

Beijing: China played down on Tuesday the India-US pact that allows the two countries the use of each other's military bases, saying it was "glad" to see the collaboration as long as it promoted regional peace.

"We have noted the relevant report. We hope that this cooperation between the US and India works to promote stability and development of the region," Hua Chunying, a foreign ministry spokesperson said.

"For such a normal cooperation between the two sides, we are glad to see it happen," Hua said.

Hua's reaction to the agreement was markedly calmer to that of a leading expert and the state media.

"The pact is a big concern. There is now a big question whether India will now lose its cherished strategic independence," Hu Shisheng, a south Asia expert at the China Institutes of Contemporary International Relations told the HT. The state media, too, was critical.

The pact could trigger strategic troubles for New Delhi and may not make it any more secure, an editorial in the nationalist Chinese tabloid Global Times said.

“This is undoubtedly a leap forward in US-India military cooperation. US media highly applauded this deal, with Forbes hailing it as a ‘war pact’ and believing that India is shifting away from Russia, its Cold War ally, toward a new alliance with the US,” the editorial said.

But it was not good for Sino-India relations or relations between India and other countries in the region, it said.

“If India hastily joins the US alliance system, it may irritate China, Pakistan or even Russia. It may not make India feel safer, but will bring strategic troubles to itself and make itself a centre of geopolitical rivalries in Asia,” the commentary said.



Wed, 31 Aug, 2016

PM Modi’s Forgotten Promises to the Military

The nationalist BJP-led Government at the Centre was expected to restore the izzat and iqbal of an impeccably apolitical, secular and professional military. Unfortunately, this has not been the case

Through his invocation of *mera jawan* during his Independence Day speech and the extraordinary display of respect and affection by three of his lady Ministers tying *rakhis* to soldiers, including those deployed at the Siachen base camp, Prime Minister Narendra Modi showcased this symbolism as the Modi brand of nationalism. A great gesture indeed, though it cannot mask or compensate the relative deficiencies in defence management *vis-à-vis* his achievements of other sectors of governance. In his famous interview to *Times Now* on duties of political and bureaucratic leadership and soldiers he noted: “Those who have to work from the table will work from the table; and those who have to guard the border will work at the border with full strength. Each one will fulfil responsibility entrusted to them. Our *jawans* are fulfilling their responsibility.” He did not indicate whether those at the table were fulfilling their responsibility.

In September 2013 as prime ministerial hopeful Modi enamoured a big gathering of military veterans at Rewari in the presence of retired Army Chief Gen VK Singh (who as an Army Chief had created a stir in Parliament by disclosing critical hollowness in operational capabilities), now a trusted Minister, that he would give the military its due — in care, respect, welfare and most of all, attention. The BJP manifesto promised to revise defence policy and implement long overdue defence modernisation. He added that it did not matter how good the equipment or how motivated the soldier. What was key was a patriotic Government in New Delhi.

Thirty months later, facts speak otherwise. Two of the lowest defence budgets (below 1.7 per cent of gross domestic product GDP) scant modernisation, zero defence reforms, and a half-baked one-rank-one-pension (OROP) followed by a thoughtless award of Seventh Pay Commission (mercifully not promulgated for the Armed Forces). A country that makes its veterans protest at Jantar Mantar, allows them to be roughed up by police, and accepts its military being told by the Chair of the Pay Commission that it cannot be treated at par with Union Government Services (with regards not to pay but status in the hierarchy of service and command) is sending a rather dangerous signal.

These very officers and soldiers ensure Parliament can proudly pronounce every time there is absence of governance and protests in J&K that it is an integral part of India. For 70 years, the Army has been deployed in J&K; for 60 years along the northern borders; and for 60 years in the North-East. One of the finest militaries in the world has become a border guarding force. It also says something about the capacity of the political and bureaucratic leadership to employ force and coercion along with diplomacy to proactively resolve outstanding internal and external disputes.

The recent judgement by the Supreme Court (July 8) on indefinite deployment of the Armed Forces in Manipur since 1958 while unappreciative of the nuances of counter-insurgency operations and embedded politics, makes a larger strategic reflection: Failure of the Government and the Armed Forces in jointly restoring normalcy. The political class spends its time and resources in winning elections with the nexus between under- and over-ground being clear in disturbed areas. Modi has asserted that winning elections is good for his party.

While Kashmir valley is expected to start breathing normally soon, periodically men in uniform are pitted against their own people notwithstanding external instigations. Cyclic protests signal a breakdown in public order. And when the political class goes underground the onus of restoring normalcy falls on the security forces. It was Lt Gen DS Hooda, the Army Commander in J&K, who first appealed for calm to find a way out of the situation through introspection by all involved in J&K including the Hurriyat. Army chief Gen Dalbir Singh made a similar appeal for calm and peace. Another former Army Commander in J&K observed: "Although militarily the situation in Kashmir valley has been kept under control most of the time, the political and socio-economic dimensions have not been adequately address. This has caused a degree of alienation."

For the services it has rendered since independence, the military has not got a fair deal. It is one institution that has been mostly taken for granted. Reforms for streamlining the Ministry of Defence have been made by numerous committees and task forces. The powerful IAS babus are preventing integration as it will dilute their control over the military. The Defence Minister's focus is on defence procurement and Make in India. Manohar Parrikar, someone joked, has become the Minister for Acquisition. Unfortunately, as he lacks the political clout of his predecessor AK Antony, whom he ridicules liberally in Parliament, he is unable to have his way with the Finance Ministry and the Prime Minister's Office. The new Minister of State for Defence is an oncologist, Subhash Bhamre, who has been locked out from the Ministry's key files.

OROP is a good example of how good a deal Parrikar could secure for the ex-Servicemen. Maj Gen Satbir Singh, the mastermind of the ex-Servicemen's agitation, has alleged that the four anomalies in the implementation of OROP were summarily rejected by MoD and not forwarded to the one-man judicial commission of Justice L Narasimha Reddy despite the assurance given by Parrikar. He called it betrayal by the Government.

On the Seventh Pay Commission, independent Rajya Sabha MP Rajeev Chandrashekar (member of Parliamentary Standing Committee on Defence) has said the anger among defence personnel and veterans goes back to the Fifth Pay Commission (actually, the Third Pay Commission) in which the status of the Armed Forces vis a vis other central government Services (IAS and IPS) was undermined in hierarchy of service and command in the guise of preserving civil-military balance. Civilian political control should not mean that civilian bureaucracy is calling the shots and that subordination of military leads to it being disadvantaged or subservient. The 46 anomalies of Sixth Pay Commission and 36 from the Seventh Pay Commission remain unresolved and no legitimate reasons are provided.

The Service Chiefs used to periodically meet Modi when he became Prime Minister. Soon that stopped. Modi did not meet the Service Chiefs or respond to former Service Chiefs over these issues. He was expected to restore the *izzat* and *iqbal* of an impeccably apolitical, secular and professional military to sharpen its blunted edges. The political class, with little knowledge of defence, has allowed itself to be guided by babus who know equally little about military issues amounting to the blind leading the blind.



Wed, 31 Aug, 2016

No revised pay yet for military personnel

The seventh Pay Commission recommendations will be reflected in this month's salary for central government employees that would be remitted on Wednesday, but not for the military personnel.

According to military sources, their new salaries are yet to be notified as the notification implementing the Seventh Pay Commission has not yet been issued by the Defence Ministry.

This is because the three service chiefs have written to Prime Minister Narendra Modi and Defence Minister Manohar Parrikar seeking their intervention to fix the anomalies expressed by the military which remain unaddressed despite several representations to the empowered committee and assurances from Mr. Parrikar.

The key demands of the services include Non Functional Upgrade, NFU pay fixation, Military Service Pay (MSP) and common pay matrix for civil and military.



Wed, 31 Aug, 2016

Aliens found? 'Strong signal' detected from nearby star

By Andrew Griffin

Just 95 Light Yrs Away, its Same Size As Our Sun

A new signal has been found deep in space that could come from aliens. The community of astronomers and scientists who scan the skies with telescopes in an attempt to find extraterrestrial life is abuzz with excitement over a 'strong signal' detected deep in space that could have come from an alien civilisation.

But some scientists have cautioned people not to get quite so excited -at least yet. The evidence remains preliminary and more work will need to be done to establish whether it is not just a mistake, let alone whether it's actually a message from aliens.

The message appeared to have come from a nearby star, HD164595, in the constellation Hercules. That star is 95 light years away -relatively close at the scale of the universe -and almost exactly the same size as our star.

What's more, that same star has at least one planet, HD164595b, which is roughly the size of Neptune and has a 40-day year. It's that planet that has people excited, since it appears it could have the right conditions for supporting life. The signal came to public attention after it was written about by science fiction author Paul Gilster, who maintains a blog that looks at deep space exploration and alien life. Until then it had been fairly unnoticed -the signal was actually detected in May last year, and was only brought to light after a presentation by the scientists who found it.

Claudio Maccone of the University of Turin in Italy attended a talk by the two scientists, who work at Russia's Ratan-600 telescope. He passed that data on to Gilster, who then wrote up the blog that revealed it. 'No one is claiming that this is the work of an extraterrestrial civilisation, but it is certainly worth further study,' wrote Gilster on his site Centauri Dreams.

He wrote that the strength of the signal might suggest that it came from a Kardashev Type II civilisation. The Kardashev scale indicates how advanced an alien civilisation might be: a Type I civilisation can use and store energy from a nearby star as we can, whereas a Type II can harness the energy of the entire star and would be far more advanced than we are.

He did acknowledge that the signal might have been noise rather than a signal. But he wrote that scientists should at least keep a permanent watch on it to be sure. The Russian scientists that found the signal wrote in their presentation that the probability of the signal being noise was low.

But some at Seti -the search for extraterrestrial intelligence, the collective of scientists looking to find transmissions from aliens -have already looked to dampen people's excitement. If it isn't heard again then it might be something like the 'WOW' signal, which was received in 1977. That was a powerful radio signal that came from a group of stars called Chi Sagittarii -the astronomer who discovered it, Jerry Ehman, circled it and wrote WOW next to it to mark it for future study, but the message was never detected again.

THE LIFE OF A MARTIAN

Six scientists — 3 men and 3 women — on Sunday left the Mauna Loa dome in a Hawaii desert seeking “fresh food” after spending a full year in near-isolation on a mission to simulate living on Mars

The experiment aimed to examine how well a small group of people, isolated from civilisation, can get along and work together. Nasa plans to send astronauts to Mars in the 2030s

This was the third and longest Mars simulation exercise funded by Nasa with University of Hawaii



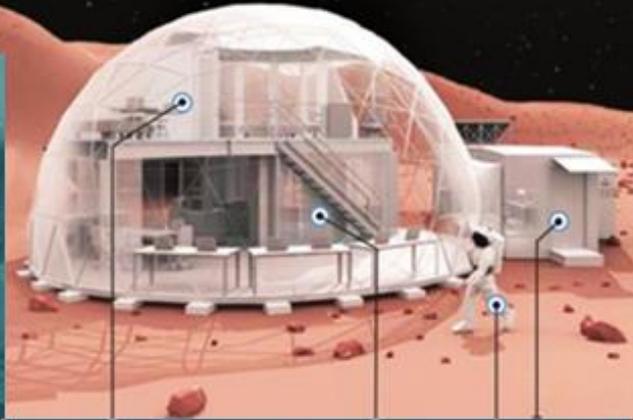
Who are the six 'scientists'?

- 1 **Cyprien Verseux**
France | astrobiologist
- 2 **Christiane Heinicke**
Germany | physicist
- 3 **Carmel Johnston**
US | soil scientist
- 4 **Tristan Bassingthwaight**
US | architect
- 5 **Sheyna Gifford**
US | journalist
- 6 **Andrzej Stewart**
US | flight controller

Where did they stay?

- In a dome, 36ft in diameter, 20ft high
- 1,500 sq ft floor space
- Located in an abandoned volcanic quarry on Hawaii's Mauna Loa mountain at an altitude of 8,000ft

The soil in the area is closest to what would be found on Mars



A sleeping loft upstairs had six small, bedrooms, across 424 sq ft

Each had a sleeping cot and a desk

Lab, kitchen, shower and exercise area were on the lower floor

Garage attached to the main residence

145
'SPACEWALKS'
IN A YEAR

It averages out at one every 2.5 days. There are only two suits, so not everyone gets to go



● The six lived and worked closely together without fresh air, fresh food or privacy

● Avoiding personal conflicts was a key task for all scientists

When walking outside the dome area, each had to wear a space suit

What did they eat?

Freeze-dried or dehydrated food. Powdered cheese and canned tuna found favour with the crew



What did they do?

MAKING WATER

Heinicke said they were able to find their own water in a dry climate. "You can get water from ground seemingly dry. It would work on Mars and you'd be able to get water from this little greenhouse construct"



STRESSED HAIR

To look for levels of cortisol, a stress hormone, in the bodies, astronauts shaved a patch at the back of their head. They would let the hair grow out about a cm each month, shave it and set it aside in a dated container. Analysing when the cortisol levels are highest will help mission planners determine which parts of the journey require astronauts to have the lightest workload



Experiments on plant growth and soil chemistry

Also constant work of maintaining their 'Mars home's' power, plumbing and other systems

What now?

They all go back to their respective work/ studies

The simulated mission was the second-longest after an earlier 520-day Russian project

Wed, 31 Aug, 2016

‘ISRO to launch 68 satellites with PSLV by early next year’

After the recent success of the scramjet engine, Antrix Corporation, the commercial subsidiary of Indian Space Research Organisation (ISRO) is gearing up to launch 68 small satellites piggy back on its workhorse, Polar Satellite Launch Vehicle (PSLV) in the next six months. Rakesh Sasibhushan, Chairman-cum-Managing Director of Antrix, said in Bengaluru on Tuesday that ISRO would launch 68 satellites with PSLV by early next year. He said, "We plan to send up PSLV early next year with 68 satellites on board."

To a question over reservations of US Congress over Indian space programmes and Antrix inviting commercial flights offering its launch vehicles, saying that Indian space launches were subsidized by the Government, Sasibhushan replied that Antrix was not bothered.

"Every Indian space programme is subsidised by the Government. It is not that US space launches or those from other (space faring) countries are not subsidised (by those Governments). We need not answer all those questions. We are doing our programmes and competing with the world. We will try to be more competitive and that will provide the answer," he stated.

ISRO has created a record through its 36th flight of PSLV-C34 in July this year when it successfully launched the 727.5 kg Cartosat-2 Series Satellite along with 19 co-passenger satellites from its spaceport in Sriharikota. It is the 35th consecutively successful mission of PSLV. The total weight of all the 20 satellites carried on-board PSLV-C34 was 1288 kg.

Sasibhushan said PSLV was very commercially competitive and it was the reason it had attracted interest among many countries and organisations which wanted their own satellites in the space. On future programmes connected with Antrix, he said GSLV will be ready for commercial operations but number of launches of the heavier launch vehicle will be less compared to PSLV.

"We are ready with testing and readiness of Cryogenic engines for GSLV. We are also looking for commercial operations (for GSLV) but the launches of these heavier rockets will be less compared to PSLV because of the Cryogenic engine and difficulties in manufacturing them. We do not have that much opportunity on GSLV, but we are on the lookout for commercial opportunity for GSLV also," Sasibhushan said.

According to ISRO the orders include contracts from US weather forecasting satellite company, PlanetIQ, which has signed a deal to launch 12 satellites on India's PSLV by 2017 and a heavier earth observation satellite by an unnamed customer. ISRO so far, has launched 74 satellites for foreign customers, including the US, Israel, Singapore and Britain. ISRO will witness increased competition for launch business from players such as SpaceX, BlueOrigin, Rocket Lab and Firefly Systems, who will begin to offer services from next year.

Antrix Corp will appeal against any verdict to protect itself from damages in the legal battle it is waging with Devas Multimedia, a satellite maker whose contract was cancelled by the government.

“The matter is sub judice. We will appeal against all judgments in any court,” said Rakesh Sasibhushan.

The reading light is also the message

Light waves have long been used to carry information and light itself was first used at the lighthouse, in signal flares or the Morse flasher, and then invisible light was used as radio waves. While telephony got started with electrical signals, speech and data are now carried by infra-red waves that run through glass fibres and the final link to the user has been with radio waves, from the WIFI or by a Bluetooth connection.

These later methods that use radio waves, however, may not be good enough for coming demands for transferring images and large data. This is both because of limitations on the amount of data that can be passed on with the wavelengths used and also because radio waves are used for communications and only a limited range is available for computers and related devices. This apart, there are advantages if white light that is used for data transfer comes from the same sources as general room lighting.

Ibrahim Dursun, Chao Shen, Manas R Parida, Jun Pan, Smritakshi P Sarmah, Davide Priante, Noktan Alyami, Jiakai Liu, Makhshud I Saidaminov, Mohd S Alias, Ahmed L Abdelhady, Tien Khee Ng, Omar F Mohammed, Boon S Ooi and Osman M Bakr at the King Abdullah University of Science and Technology, at Thuwal, Kingdom of Saudi Arabia, report in the American Chemical Society journal, ACS Photonics, a development that overcomes limitations of existing lighting devices for use in data transfer.

The current technology of lighting that can be integrated with electronics is the Light Emitting Diode, wherein semiconductors, the material of transistors, have free electrons and also spaces called *holes* that lack an electron and which are kept apart. But when a voltage is applied, electrons rush to fall into holes and in the process they give off a flash of light. As LEDs can be switched on and off at a very fast rate, the flashes can be used to transmit large data in binary format. As the high-speed switching cannot be made out by the human eye, the LED can be used for illumination at the same time. The trouble, however, is that LED light is of a specific colour and the illumination is not by white light.

A solution for general lighting use was to use a trio of LEDs, emitting in the primary colours. This led to the field of Solid State Lighting and also allows the LED to be used in displays, like full colour TV screens. For use for data transfer, where the light needs to be switched on and off, however, it is necessary that the light comes from the same source and not from three different LEDs. This, or Visible Light Communication, has been attained with the most recently developed blue light LED, or laser diodes, which are used along with materials that convert blue light into green and red, or yellow, to shine together as white light. The problem, however, has been that these colour-converting materials, which are called phosphors, are not fast enough for complementary colours to change as soon as the blue LED is switched on or off. The time taken, the KAUST paper says, is of the order of microseconds, or millionths of a second, and the switching of the white light for data transfer in existing VLC cannot be faster than three to 12 million times a second. Alternate colour converters that have been developed do allow speeds of 40 to 200 million cycles a second, but this still falls short of what is needed, the authors say.

Perovskites

They, hence, studied the properties of a class of materials called perovskites, a mineral variety with a particular generic structure, of an atom that has three outer shell electrons, one that has four and one that has two. These materials have most interesting electrical and optical properties and have become important components of solar cells and may take the place of silicon in some applications. The make-up of these materials can be arranged so that they have emission of light at specific frequencies, the authors say. They are also low cost and easily worked with at reasonably low temperatures, they say. Nanocrystals of one kind of perovskite, which contains cesium, lead and bromine atoms, they say, have a very high luminescent yield and the flash has a very short lifetime. These qualities have made the material useful in displays and for creating sources of white light.

The researchers studied the possibility of this material being used in VLC applications, side by side with being a white light source for SSL devices. They find, the papers says, that the material has excellent colour rendering capacity and also reacts very fast, in a time frame of seven billionths of a second, which makes for colour converting frequency of 491 million cycles a second. This is 40 times higher than the frequency of some 12.4 million cycles a second which is currently available.

The amount of data that can be carried over a channel that has a given range of frequency is dependent on the manner of coding that is used to represent the data, like binary, which is on-off or phase shifting, which can double the data rate. The trials conducted with the lead and bromine containing perovskites showed that the data rate could go as high as two gigabits, or two billion units of information, which amounts to 125 million characters of text, every second.

Apart from this significantly higher data-carrying capacity, the emission is bright, white light, which can be used for home or office lighting. The white light from the switched LEDs, unlike light from incandescent lamps, is not continuous nor, like the fluorescent lamp, with a steady flicker at the frequency of alternating power supply. Instead, the light has a flicker in nanoseconds and the pattern of flicker carries exact information of data being transmitted. Optical sensors within the area that is lighted can hence pick up the data. With a capacity of two gigabits a second, different sets of data, meant for different devices, can be sent out at the same time, a versatility that a WIFI transmitter or a single Bluetooth device does not have.

The Statesman

PEOPLE'S PARLIAMENT, ALWAYS IN SESSION

Wed, 31 Aug, 2016

Radio technology

A team of US researchers has introduced a new radio technology that allows small mobile devices such as fitness trackers



and smart-watches to take advantage of battery power in larger devices nearby for communication. Dubbed Braidio for "braid of radios", the technology can extend battery life hundreds of times in some cases, they said.

nearby for communication. Dubbed Braidio for "braid of radios", the technology can extend battery life

Technologies like Braidio opened up a new way of thinking about the design of mobile and wearable devices, said Deepak Ganesan, a professor at the University of Massachusetts, Amherst, and research team leader. "Wearable devices are often bulky due to large batteries needed for adequate battery life. Perhaps such energy offload techniques can reverse this trend and enable thinner and lighter devices."

To develop the new technology, the researchers embellished Bluetooth, a commonly-used radio technology, with the ability to operate in a similar manner to Radio-Frequency Identification, which operates asymmetrically. Braidio operates like a standard Bluetooth radio when a device has sufficient energy, but

operates like Radio-Frequency Identification when energy is low, offloading energy use to a device with a larger battery when needed. So when a smartwatch and smartphone are equipped with Braidios, they can work together to proportionally share the energy consumed for communication, they explained.

THE HINDU

Wed, 31 Aug, 2016

Plants likely to turn less thirsty as climate warms, says study

A warming planet might not dry out Earth as much as previously believed, because plants will become less thirsty as carbon dioxide in the atmosphere rises, researchers have said.

Previous studies have projected that more than 70 per cent of the planet will experience more drought as carbon-dioxide levels quadruple from pre-industrial levels over the next 100 years, said the report in the *Proceedings of the National Academy of Sciences* published on Monday.

But many of these models fail to account for how plant behaviour will change in a warming world.

Plants take in carbon dioxide through openings called stomata, which also release moisture. But when carbon dioxide is abundant, these stomata stay open for shorter periods, lose less water, and therefore need less water from the soil.

“A number of studies assume that plant water needs are staying constant, when what we know about plants growing in lots of carbon dioxide suggests the opposite,” said lead author Abigail Swann, a University of Washington assistant professor of atmospheric sciences and biology.

Ms. Swann found that only about 37 per cent of the world will face climate change-driven drought, because plants benefit from an environment with more carbon dioxide.

A hotter world with less rain will likely increase droughts across the southern part of North America, southern Europe and north-eastern South America, said the study.

Droughts will increase - “But the results show that in Central Africa and temperate Asia – including China, the Middle East, East Asia and most of Russia – water conservation by plants will largely counteract the parching due to climate change,” it said. The findings still show that droughts will increase as the climate changes, just not as far and wide as some have predicted.

“There’s a lot we don’t know, especially about hot droughts,” Ms. Swann said.

“Even if droughts are not extremely more prevalent or frequent, they may be more deadly when they do happen,” she said.



Wed, 31 Aug, 2016

Centre lifts ban on MPhil, PhD through distance mode

New Delhi: The Centre has lifted the ban on open universities offering MPhil and PhD programmes in non-technical subjects through distance learning mode, thus allowing more students to acquire the qualifications through UGC-approved institutions.

The meeting presided over by HRD Minister Prakash Javadekar also relaxed the norms that required regular varsities and institutions to seek the UGC approval annually for offering programmes in distance education.

"Institutions now need to obtain one-time approval for degree programmes," official sources told DH. "Only if they introduce fresh programmes or make changes or deviations in existing ones should they approach the UGC for fresh approval."

Sources also added that the institutions need not take UGC permission for diploma or certificate.

Open universities can offer these programmes in distance education mode in non-technical subjects, a senior HRD Ministry official said. The current restrictions on offering technical education through distance mode shall remain, the official added.

"PhDs have been allowed in subjects like humanities and social sciences," the HRD Minister told reporters after the meeting.

Thousands of students across the country are taking courses from 15 open universities, including the Indira Gandhi National Open University (IGNOU).

Though the meeting was attended by representatives of all open universities, the issue of renewing Karnataka State Open University was not part of the agenda.

"This issue was not discussed at the meeting. The UGC is separately examining the case of Karnataka Open University. A decision will soon be taken," a UGC official said.



Wed, 31Aug, 2016

Design contest for national war memorial

New Delhi: The government has initiated a global design competition for the construction of a National War Memorial here with total prize money of USD 230,000 to be won.

The National War Memorial will honour the memory of all soldiers of the Indian armed forces who have made the ultimate sacrifice for the nation.

It would combine architectural aesthetics and public sentiment, and serve as a place for people to show their respect for soldiers, for their extraordinary efforts to protect the nation.

The selected site is located in the heart of New Delhi, within the C-Hexagon that lies in the close vicinity of India Gate and the Chattri. The National War Museum will be an institution to collect, preserve, interpret and display military artifacts, portray significant events of our nation's wars and conflicts and related objects of historical importance for education and promoting patriotism.

The selected site for this museum is Princess Park near India Gate. The International Design Competition for the Memorial and Global Architectural Competition for the Museum has been launched on MyGov.in portal.

Both these global competitions are being conducted in two stages. In Stage 1, the competitors are required to submit their online entries for the National War Memorial by October 2 and for the National War Museum by October 15.

The top nine entries shortlisted from Stage 1 submissions will be eligible for prize of USD 2,000 each for the Memorial and USD 3,000 each for the Museum.

These top nine entries thereafter will be eligible to participate in the Stage 2 of the contest, for which they will have to submit detailed designs, including 3D models and present their design plan before an eminent panel of jury.

The 1st prize for the National War Memorial competition is USD 30,000 and for the National War Museum competition is USD 75,000.

The 2nd prize for the war memorial competition is USD 25,000 and for the war museum competition is USD 50,000 while the 3rd prize for the war memorial is USD 20,000 and for the war museum is USD 25,000.



Wed, 31Aug, 2016

7th Pay Commission: Change rules to reflect recommendations, Govt tells depts

The Centre has accepted most of the recommendations of the 7th Pay Commission, to be implemented from January 1, 2016.

All central government departments have been asked to change service and recruitment rules to reflect recommendations of the Seventh Central Pay Commission. They have been asked not to make reference to the

Department of Personnel and Training (DoPT) and the Union Public Service Commission and modify the service rules on their own.

The Centre has accepted most of the recommendations of the 7th Pay Commission, to be implemented from January 1, 2016.

Consequential amendment in the existing service rules and recruitment rules shall be made by the ministries or departments by substituting the existing pay band and grade pay by the new pay structure i.e. Level in the Pay Matrix straightaway without making a reference to the Department of Personnel and Training and Union Public Service Commission, the DoPT said in an order.

In this regard, a confirmation meeting is scheduled to be taken by the DoPT to take stock of the latest position of amendment in service rules/recruitment rules.

The meeting will be taken with representatives of all the ministries in first week of October, it said.

All central government departments have already been asked to set up committees to look into various pay related anomalies arising out of the implementation of the Pay Commission's recommendations.

There will be two levels of Anomaly Committees - National and Departmental - consisting of representatives of the official side and the staff side of the national council and the departmental council, respectively.



Wed, 31 Aug, 2016

Bonus boosted to Rs. 7,000

More good news is in store for central government employees who have been showered with attractive benefits following the decision of the Modi regime to implement the recommendations of the Seventh Pay Commission.

On Tuesday, the government doubled the employees Productivity Linked Bonus (PLB) or ad-hoc bonus to Rs. 7,000 from Rs. 3,500 with effect from April 1, 2014.

A notification issued by the government said that the grant of Productivity Linked Bonus or Ad-hoc Bonus to its employees for the year 2014-2015 calculation ceiling for the purpose of payment of ad-hoc bonus was monthly emoluments of Rs. 3,500.

The notification said the question of enhancement of calculation ceiling for payment of PLB and non-PLB to the employees has been considered and the President has decided that the calculation ceiling of monthly emoluments for payment of PLB and ad-hoc bonus, as the case may be, shall be revised to Rs. 7000 with effect from April 1, 2014 for the accounting year 2014-15.